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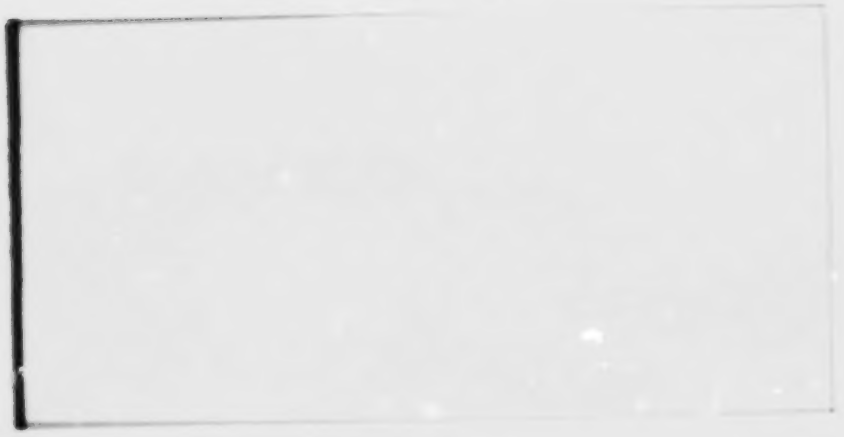

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PB-202 355

STANDARD TITLE PAGE FOR TECHNICAL REPORTS	1. Report No. APTD-0712	2. Gov't. Accession No.	3. Recipient's Catalog No.
4. Title and Subtitle: Emission Inventory for the State of Nebraska			5. Report Date: July 29, 1971
			6. Performing Organization Code
7. Author(s)			8. Performing Organization Rept. No.
9. Performing Organization Name and Address: The IBM Corporation, Federal Systems Division, Gaithersburg, Maryland 20760			10. Project/Task/Work Unit No. 1-BOA 68-02-0043
			11. Contract/Grant No.
12. Sponsoring Agency Name and Address: The Environmental Protection Agency, Air Pollution Control Office, Durham, North Carolina 27701			13. Type of Report & Period Covered: Final
			14. Sponsoring Agency Code
15. Supplementary Notes			

16. Abstracts

An effort was made to assist the State of Nebraska in the development of an emission inventory of suspended particulates, sulfur dioxide, hydrocarbons, carbon monoxide and nitrogen oxides. A description of the methodology, assumptions and data sources used are presented for each of the following emission sources: coal, residual oil, distillate oil, natural gas, gasoline marketing, dry cleaning, automobile sources, diesel road vehicles, railroad, vessels, aircraft, open burning, field and agricultural burning.

17. Key Words and Document Analysis. (a). Descriptors

Inventories
Air pollution
Aerosols
Sulfur dioxide
Hydrocarbons
Carbon monoxide
Nitrogen oxides
Coal
Residual oils
Distillates
Natural gas
Evaporation
Solvent cleaning
Automobiles
Railroad trains
Ships
Airplanes

17b. Identifiers/Open-Ended Terms

Emission inventories
Open burning

17c. COSATI Field/Group: 13B	19. Security Class (This Report): UNCLASSIFIED	21. No. of Pages: 78
18. Distribution Statement: Unlimited	20. Security Class. (This Page): UNCLASSIFIED	22. Price: $3.00

FORM NBS-867(1-70)

FINAL REPORT

Emission Inventory

for the

State of Nebraska

July 29, 1971

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Emission Inventory

for the

State of Nebraska

Prepared by

The IBM Corporation
Federal Systems Division
Gaithersburg, Maryland 20760

Prepared for:

The Environmental Protection Agency
Air Pollution Control Office
Durham, North Carolina 27701

Authorization:

Task Order Number 1
BOA 68-02-0043

July 29, 1971

FOREWORD

The following report represents the results of the work performed under BOA 68-02-0043, Task Order Number 1 from The Environmental Protection Agency, Air Pollution Control Office. A note of thanks is due to Mr. E. J. Lillis and D. Dunbar of the EPA Project Office and Mr. Peter Culver, the EPA Project Engineer for their assistance and excellent cooperation during the study. A note of special thanks is due to Mr. Gene Robinson of the Nebraska Division of Air Pollution Control without whose efforts successful completion of this task would not have been possible.

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EMISSION INVENTORY

FOR THE

STATE OF NEBRASKA

Section 1 - Area Description

The State of Nebraska is divided into four Intrastate and Interstate air quality control regions as shown in Figure 1. These are:

a) The Nebraska portion of the Omaha-Council Bluffs Interstate Air Quality Control Region, consisting of Douglas and Sarpy counties in Nebraska.

b) The Nebraska portion of the Metropolitan Sioux City Interstate Air Quality Control Region consisting of Dakota County in Nebraska.

c) The Lincoln, Beatrice-Fairbury Intrastate Air Quality Control Region consisting of Lancaster, Gage, Jefferson and Thayer Counties, and

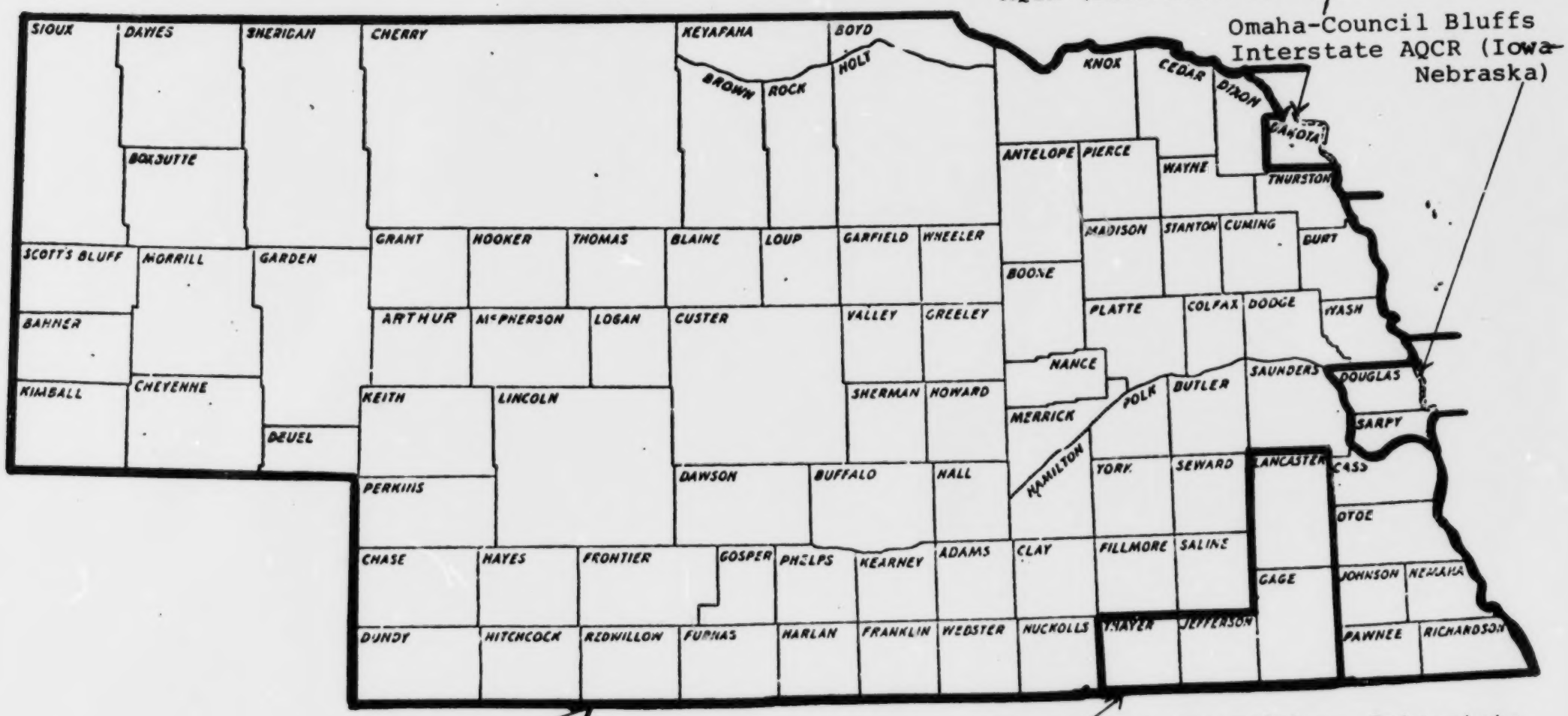
d) The Nebraska Intrastate Air Quality Control Region, consisting of all remaining counties within the State of Nebraska not designated as part of any other air quality control region.

The topography of the state consists of a gentle slope from the high area in the Northwest toward southeast of approximaterly 10 feet per mile with some hilly regions along the northern and eastern borders. The highest point in the state is located in Kimball County (5,424 feet) and the lowest point in Richardson County (840 feet).

Figur

STATE OF NEBRASKA

Air Quality Control Regions



Climatological parameters undergo a slow transition from the eastern portion of the state to the western portion. The mean annual precipitation in the east is approximately 27.5 inches and reduces to about 12.6 inches in the west. The concentration of this precipitation during the months of April through August accounts for the excellent growing conditions found in the state. The temperatures vary widely during the year with a January mean of approximately 22.2° F. in the east and 24.1° in the west and a July mean of 77.0°F in the east and 73.8° F in the west.

The state population based on the 1970 census was 1,483,493 over an area of 76,612 square miles for an average population density of 19.4 persons per square mile.

Section 2 - Task Description

The purpose of this task was to assist the Nebraska Division of Air Pollution Control in the development of an emission inventory of suspended particulates, sulfur dioxide, hydrocarbons, carbon monoxide and nitrogen oxides, which would meet the requirements of the National Ambient Air Quality Standards as published in the Federal Register, Volume 36, Number 67, dated April 7, 1971. The effort consisted of the following:

a) Assist the state in preparation and distribution of questionnaires to potential polluters.

b) Calculate estimated emissions of individual sources from data provided in the returned questionnaires.

c) Notify the state of data deficiencies and identify the additional data required.

d) Notify the state of additional significant sources of pollution which should be surveyed but have not previously been contacted.

e) Evaluate area source emissions using best current techniques.

f) Grid Douglas and Sarpy counties in the Omaha area and Lancaster County in the Lincoln area in UTM coordinates using 2-1/2, 5 and 10 km square grids, and evaluate the area source emissions from these grids.

g) Evaluate the pollutant emissions from the remainder of the state on a county-by-county basis with the counties grouped by Air Quality Control Regions.

h) Calculate the allowable emissions for each identified point source based on maximum control technology. Note that the State of Nebraska has modified its regulations to coincide with maximum control technology as identified in the Federal Register previously referenced.

i) Format the resultant pollution data in accordance with the Federal Register requirements and provide these data as part of the Task Order Final Report.

Section 3 - Methodology

Point Sources:

Point source questionnaires were sent to all potential polluters with over 25 employees or which meet the requirements of Appendix C to the Federal Register, Volume 36, Number 67, dated April 7, 1971. A copy of the cover letter and primary questionnaire are presented in Appendix C. On receipt, these questionnaires were reviewed by the State of Nebraska Division of Air Pollution Control for completeness. Those sources with emissions of at least five (5) tons per year were forwarded to IBM, where the questionnaires were analyzed and data forms prepared. Computer cards prepared from these forms were processed using a government-developed program which calculated the emissions from combustion sources. Emissions from process sources were hand calculated and provided as a direct entry into the computer system. A copy of the point source data form is provided in Appendix A.

Recontact of non-responding sources was limited to those sources contained in an IBM-prepared priority listing. This listing contained the following:

a) All sources with 500 or more employees.

b) All sources with 25 to 499 employees with the following SIC codes:

2041 -Flour and other Grain Mill Products

2042 -Prepared Feeds for Animals and Fowl

2092 -Soybean Oil Mills

28XX - Chemicals and Allied Products

29XX - Petroleum Refining and Related Industries

30XX - Rubber and Misc. Plastic Products

32XX - Stone, Clay, Concrete and Glass Products

33XX - Primary Metal Industries.

c) All hospitals with 100 or more beds.

d) All colleges and Universities with an enrollment of 500 or more students.

e) All federal facilities with a floor area of 100,000 square feet or more.

Gasoline storage facilities were added to the priority list when it was realized that these facilities were not included among the manufacturing sources contained in the Nebraska Directory of Manufacturers. A special questionnaire was prepared for submission by these sources.

The following sources of data were used in developing the mailing and priority lists.

a) "Directory of Nebraska Manufacturers and Their Products, 1970 - 71," Published by the Nebraska Department of Economic Development.

b) "Nebraska Blue Book, Directory of Colleges and Universities."

c) Nebraska Department of Health, Division of Hospitals.

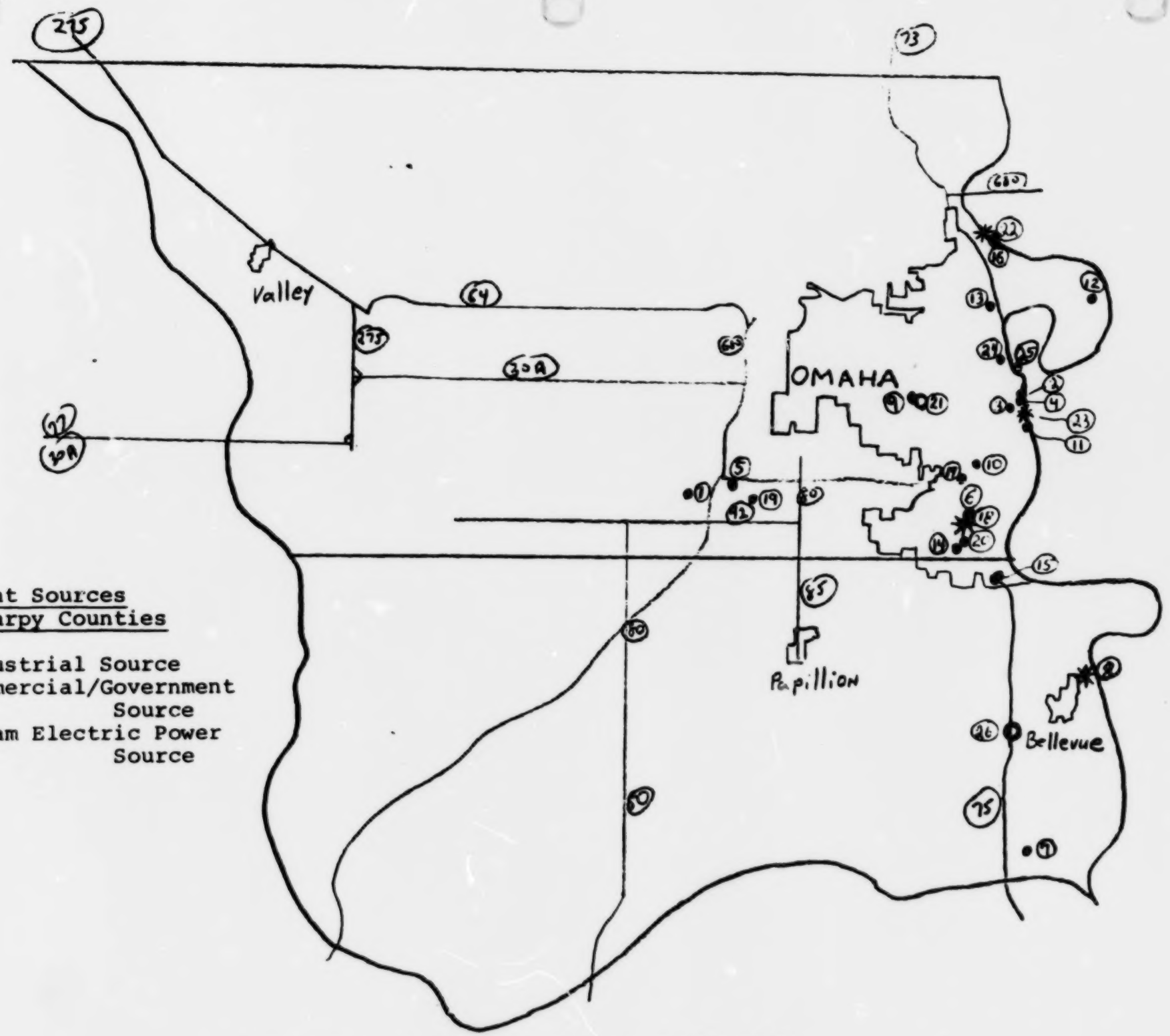
d) Computer listing - "Facilities owned by the Federal Government," Federal Facilities Branch, Air Pollution Control Office.

e) Nebraska Dept. of Revenue, Gasoline Tax Division.

When hand calculated emissions were required, the emission factors presented in "Air Pollution Emission Factors, Preliminary Document," by M. J. McGraw and R. L. Duprey, dated April 1971, were used. In cases where certain air pollution control equipment appeared as a standard part of a process (e.g. the cyclone in Alfalfa Dehydrating), these control devices were not identified as such in the control device section of the point source data form. It was assumed that the presence of these control devices was accounted for in the emission factors. Maps showing the location of the largest point sources in the Omaha and Lincoln areas are presented in Figures 2 and 3.

Area Sources

Area sources were generally treated in accordance with the procedures as specified in "Air Pollutant Emission Inventory Techniques," by P. J. Bierbaum and M. J. Gedgaudas. A description of the methodology, assumptions and data sources used is presented in the following paragraphs. A copy of the Area Source data form is included at the end of this report as Appendix B.



Large Point Sources
Douglas-Sarpy Counties

- ● - Industrial Source
- o - Commercial/Government Source
- ✳ - Steam Electric Power Source

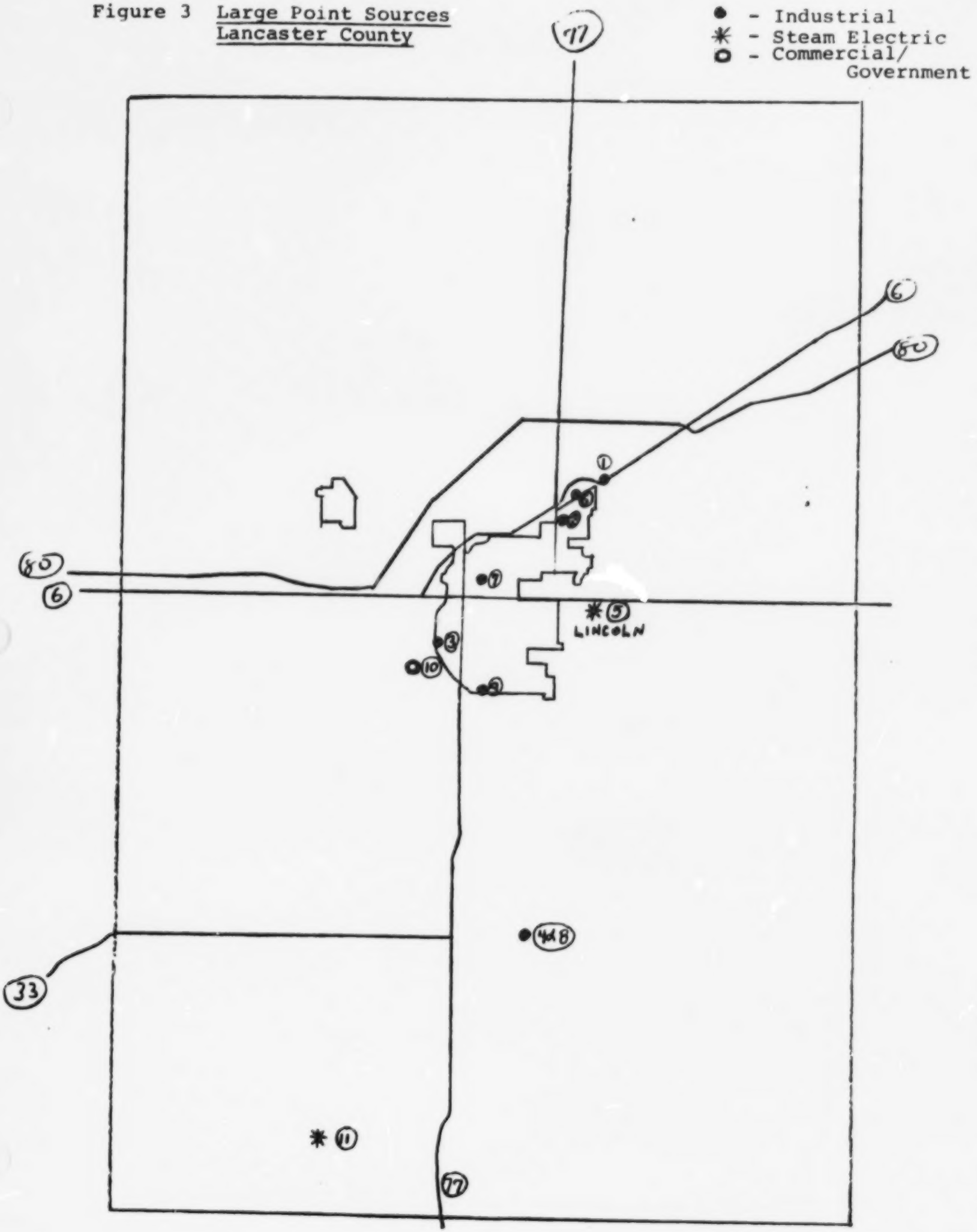
Figure 2 - Large Point Sources Omaha Area

Index to Figure 2

Large Point Sources Omaha Grid

1. Western Electric
2. American Smelting & Refining Co.
3. Coca Cola Foods
4. Gould-Base Metals Div.
5. Nashua Corp.
6. Con-Agra Nixon
7. Allied Chemical - Agric. Div.
8. Nebraska Electric Power
9. Omsteel Industries, Inc.
10. Ralston-Purina Co.
11. Quaker Oats Company
12. Nashua Paramount Paper
13. Lozier Corp.
14. Cargell, Inc.-Nutrena
15. Federal Chemical
16. Mobil Oil Co.
17. Allied Mills
18. Omaha Public Power
19. Lueder Construction Co.
20. Wilson Certified Foods
21. University of Nebraska Medical Center
22. Omaha Public Power
23. Omaha Public Power
24. Con Agra - Omaha
25. Wilson Brothers Pipeline
26. Offut A.F.B.

Figure 3 Large Point Sources
Lancaster County



Index to Figure 3

Large Point Sources Lincoln Area

1. Ralston Purina
2. Goodyear Tire & Rubber
3. Gooch Milling & Elevator
4. Texaco, Inc.
5. Nebraska Public Power - Lincoln
6. Burlington Northern, Inc.
7. Cushman Motors
8. Continental Oil
9. Northwestern Metal
10. Lincoln Regional Center
11. Nebraska Public Power - Hallem

I. FUEL COMBUSTION SOURCES

A. Coal

1) Assumptions:

a) All coal use in Nebraska is industrial.

b) Nebraska industrial coal use is related to Kansas use in the same proportion in 1970 as in 1962.

c) The 1970 county manufacturing employment can be obtained through linear extrapolation of the available 1963 and 1967 data.

2) References and Data Sources:

a) Total 1970 Kansas and Nebraska coal: Bureau of Mines, "Bituminous Coal and Lignite Distribution."

b) Manufacturing Employment:
Census Bureau, "1967 Census of Manufacturers."

c) 1962 Kansas-Nebraska coal data:
Census Bureau, "1963 Census of Manufacturers, Fuels and Electrical Energy Consumed."

d) "Generalized Land Use Map," Omaha City Planning Board.

e) Land use map developed from data supplied by the Lincoln Planning Department.

3) Apportioning Techniques

a) To counties

Industrial Coal

The total state industrial coal was apportioned to the counties in proportion to the number of manufacturing employees per county, linearly extrapolated to 1970 from 1963 and 1967 data.

$$\text{County coal} = \text{state coal} \times \frac{\text{county manu. empl.}}{\text{state manu. empl.}}$$

$$\text{State coal} = 1970\ KNC \quad \frac{1962\ NC}{1962\ NC + 1962\ KC} \quad - \text{Pt. Source coal}$$

Where:

1970 KNC = 1970 Kansas Nebraska Industrial Coal

1962 NC = 1962 Nebraska Industrial Coal

1962 KC = 1962 Kansas Industrial Coal

There were two additional cases which had to be considered:

i) Counties which had manufacturing employment, but for which data was not made available, and

ii) Counties with no manufacturing employment.

For the first case the remaining manufacturing employment after subtracting the sum of the county extrapolated data from the state extrapolated data was evenly distributed among these counties.

This remainder was small in comparison to the total state manufacturing employment and should, therefore, have little impact on the inventory results. Any county not listed in the 1967 census of manufacturers was considered as having zero manufacturing employment.

b) To Grids

Industrial Coal

The county or air quality control region total coal was apportioned to the grids in proportion to the industrial area in the grid.

$$\text{Grid Coal} = \text{County Coal} \times \frac{\text{Grid industrial area}}{\text{County Industrial area}}$$

B. Residual Oil

1) Assumptions

a) All residual oil use is commercial and industrial.

b) Commercial residual oil for heating is equal to the sum of the National Oil Fuel Institute categories of Heating and Military.

c) Industrial residual oil is equal to the sum of the National Oil Fuel Institute categories of Industrial and Utilities.

d) National Fuel Oil Institute residual oil category - "Other" - is considered as input for processes such as asphalt paving.

e) 1970 manufacturing employment can be obtained through linear extrapolation of the available 1963 and 1967 data.

f) 1970 retail establishment and wholesale establishment data can be obtained through linear extrapolation of the available 1963 and 1967 census data.

g) 1969 Fuel Oil data is acceptable for use in this study.

2) References and Data Sources:

a) 1969 oil use in Nebraska:

The National Oil Fuel Institute, Inc., New York, N. Y.

b) Manufacturing Employment:

Census Bureau, "1967 Census of Manufacturers."

c) Wholesale Establishment Data:

Census Bureau: "1967 Census of Business, Wholesale Trade."

d) Retail Establishment Data:

Census Bureau: "1967 Census of Business, Retail Trade."

e) Land-use Maps of the Lincoln and Omaha areas.

3) Apportioning Techniques

a) To Counties

Industrial Residual Oil

Industrial Residual oil remaining after subtractions of the point source use is apportioned to counties in the same manner as state coal.

Commercial Government Residual Oil

Commercial-Government residual oil is apportioned to the grids in proportion to the commercial-government area within the grid.

$$\text{C-G Grid Residual Oil} = \text{County Residual Oil} \times \frac{\text{Grid C-G area}}{\text{County C-G area}}$$

C. Distillate Oil

1) Assumptions

a) 1960 census of housing data is reasonable to use for determination of the number of housing units using oil for heating within each county.

b) The housing units using oil for space heating in the gridded areas is directly proportional to the total number of housing units in a grid.

c) Residential, commercial, government distillate oil is equal to the sum of the National Oil Fuel institute Distillate oil and Kerosene categories of Heating, Military and 50% [Other less state diesel].

e) Same as assumptions e, f and g for residual fuel oil.

2) References and Data Sources:

a) All references as itemized for residual oil.

b) "1970 Census of Housing, Advanced Report," Census Bureau.

c) "1960 Census of Housing, Occupancy characteristics, Heating Equipment and Type of Fuel for Counties," Census Bureau.

d) "1970 Census of Population and Housing, Advanced report for the Standard Metropolitan Statistical Areas of Omaha and Lincoln," Census Bureau.

e) "Climatological Data for Nebraska," Environmental Data Service, NOAA.

3) Apportioning Techniques

a) To Counties

Industrial Distillate Oil:

The remaining industrial distillate oil after subtraction of point source use is apportioned to the counties in proportion to the 1970 manufacturing employment in the counties.

Residential Distillate Oil:

The residential distillate oil use is determined as follows:

State Residential Distillate Oil = State dwelling units using oil x 0.18 gal/d.u./deg day

$$\text{X degree days} \times \frac{\text{Rms/d.u.}}{5.0}$$

where: state dwelling units (d.u.) using oil = 97456

Degree days = 6514

Use factors = 0.18 gal/du/deg day

Rooms per d. u. = 5.1

State residential fuel oil use = 116,554,000 gallons.

Commercial Government Distillate Oil:

The Commercial Government distillate oil is apportioned in the same manner as the commercial government residual oil, i.e. in proportion to the sum of the wholesale and retail establishments in the county. The total available commercial government distillate oil is equal to the total CGR distillate oil less the state residential distillate oil and CG point source distillate oil.

b) To grids

The industrial and commercial-government distillate oil is apportioned to the gridded areas in the same manner as the industrial and commercial-government residual oil.

The residential distillate oil is apportioned to the gridded areas in proportion to the total number of housing

units in the area as follows:

$$\text{Grid Residential Distillate Oil} = \text{County residential distillate oil} \times \frac{\text{Housing units grid}}{\text{Housing units county}}$$

D. Natural Gas

1) Assumptions:

a) The number of housing units using natural gas was taken directly from the 1960 census of housing data except that in Douglas, Sarpy and Lancaster counties the increase in housing units between 1960 and 1970 are assumed to all use natural gas.

b) L.P. gas used in Nebraska was converted to equivalent natural gas using a factor of one gallon L.P. gas as equal to 350 cubic feet of natural gas. This factor was determined from the emission factors for natural and LP gas and use of the factor will equalize the resultant emissions. The number of housing units using natural gas was therefore increased by the number of housing units using LP gas. The designation natural gas used herein means natural gas plus LP gas.

c) The breakout of gas useage among residential, commercial-government, and industrial sources is proportionally the same for 1970 as for 1969 for all counties outside of the Omaha area. For Douglas and Sarpy counties data on the amount of fuel used by user class for 1970 was directly available from the utilities.

d) 1969 LP Gas amounts are used to represent 1970 data.

2) References and Data Sources:

a) 1970 Natural Gas use data was obtained directly from the utilities.

b) 1969 Natural Gas use data was obtained from "Gas Facts 1970."

c) All Census Bureau documents required for distillate oil data are also required for natural gas.

d) "1969 LP Gas Market Facts" published by the LP Gas Association, Chicago, Illinois.

3) Apportioning Techniques:

a) To counties:

The total state natural gas useage was divided into the categories of Residential, Commercial and Industrial in the same proportions as the total state 1969 natural gas useage. The category "Other" was grouped with commercial for this purpose.

The use of natural gas in the Omaha area (Douglas and Sarpy Counties) was subtracted by category to obtain the natural gas amounts to be apportioned to the counties.

Residential Natural Gas

Residential natural gas was apportioned to the counties in proportion to the number of housing units in the county

using natural gas in accordance with the 1960 census except for Lancaster, Douglas and Sarpy counties, where the increase in housing between 1960 and 1970 was considered to represent added natural gas useage.

Residential Natural gas county =

$$\text{Residential Natural gas State} \times \frac{\text{d.u.'s using N.G. County}}{\text{d.u.'s using N.G. State}},$$

where State means all counties less Douglas and Sarpy counties.

$$\text{Residential N.G. Douglas County} = \text{Res. Nat. Gas [Douglas + Sarpy Co.s]} \times \frac{\text{d.u.'s using N.G. Douglas}}{\text{d.u.'s using N.G. [Douglas + Sarpy]}}$$

Residential N.G. Sarpy Co.= Res. Nat. Gas [Douglas + Sarpy Co's] - Res. Nat. gas Douglas Co.

Commercial-Government Natural Gas

Commercial-Government (CG) Natural gas was apportioned to the counties after subtraction of the identified commercial-government point source natural gas useage in

proportion to the sum of the wholesale and retail establishments in the county

$$\text{County CG Natural GAS} = \text{State CG Nat. Gas} \times \frac{\text{wholesale \& retail county}}{\text{wholesale \& retail state}}$$

where state means all of Nebraska except Douglas and Sarpy Co.s.

Douglas and Sarpy CG Natural Gas was apportioned in the same manner as above.

Industrial Natural Gas

Industrial natural gas was apportioned to the counties after subtraction of the identified industrial point source natural gas useage in proportion to the manufacturing employment in the county in the same manner as done for industrial residual oil. Again the Douglas-Sarpy County area was separated from the rest of the state and treated independently since data was directly available on the 1970 natural gas useage in these counties.

b) To Grids

County or ACQR Residential Natural Gas was apportioned to the gridded areas in proportion to the number of dwelling units in the grid in the same manner as the residential distillate oil was apportioned to the gridded area.

County or ACQR commercial-government natural gas was apportioned to the gridded areas in proportion to the Commercial-Government area within a grid in the same manner as the Commercial-Government residual oil was apportioned to the gridded areas. County or ACQR Industrial Natural gas was apportioned to the gridded areas in proportion to the manufacturing area in the grid in the same manner as industrial coal was apportioned to the gridded areas.

II. EVAPORATIVE SOURCES

A. Gasoline Marketing

1) Assumptions

a) There are approximately equal numbers of splash and submerged fill gasoline storage tanks used in the gasoline service stations in Nebraska.

b) Gasoline marketing evaporative losses in an area are proportional to the automobile useage or the automobile ownership within that area.

2) References and Data Sources

a) Total gasoline used within the state from the Nebraska State Government.

b) "State of Nebraska Annual Motor Vehicle Report 1970," as published by the Nebraska State Government.

c) Traffic count data for the Omaha and Lincoln Areas as supplied by the Nebraska Department of Roads.

3) Apportioning Techniques

a) To counties

The total gasoline sold in the State of Nebraska was apportioned to the counties in proportion to the number of motor vehicles registered in that county.

County Gasoline Sales = State Gasoline Sales X

$$\frac{\text{County Vehicle Registrations}}{\text{State Vehicle Registrations}}$$

b) To Grids

The total gasoline sold in a county or ACQR determined from step A3 was apportioned to the gridded areas in proportion to the yearly vehicle miles driven in that area. The procedures for obtaining these vehicle miles are discussed under mobile automobile sources.

B. Dry Cleaning

1) Assumptions

a) The amount of dry cleaning evaporative losses is directly proportional to the amount of clothes cleaned, which is proportional to the population in an area.

b) The factor of 25 pounds per capital per year for dry cleaning is appropriate for use in Nebraska.

2) References and Data Sources

a) "1970 Census of Population, Advanced Report," Census Bureau.

b) "1970 Census of Population and Housing, Advanced Report for the Standard Metropolitan Statistical Areas of Omaha and Lincoln," Census Bureau.

3) Apportioning Techniques

a) To Counties

The total amount of dry cleaning fluid evaporation was determined by using the factors of 2.7 pounds per capital per year given on page 36 of "Air Pollution Emission Factors, Preliminary Document," by M. J. McGraw and R. L. Duprey. This total evaporative loss was apportioned to the counties in proportion to the population of the county.

$$\text{County Dry Cleaning Evaporative Loss} = \text{State Evaporative Loss} \times \frac{\text{County Pop.}}{\text{State Pop.}}$$

b) To Grids

Dry cleaning evaporative losses from the counties or ACQR's were apportioned to the gridded areas in proportion to the population of the grid.

III. MOBILE SOURCES

A) Automobile Emissions

1) Assumptions

a) Automotive emissions are proportional to the gasoline used, which is proportional to the vehicle miles driven within an area or the number of motor vehicles registered within an area.

b) On the average an automobile travels 12.5 miles per gallon of gasoline consumed.

c) 45 mph and 25 mph traffic is proportional to the rural and urban county populations respectively.

2) References and Data Sources

a) 1970 gasoline sales as provided by the Nebraska State Government.

b) State of Nebraska Annual Motor Vehicle Report.

c) Traffic count data for Lincoln and Omaha as supplied by the Nebraska Department of Roads.

d) "1970 Census of Population, Advanced Report," Census Bureau.

e) Road Maps of Lincoln and Omaha.

3) Apportioning Techniques

a) To Counties

Total vehicle miles driven within the state was determined by multiplying the gasoline sales by an average of 12.5 vehicle miles per gallon of gasoline. This total vehicle miles data was apportioned to the counties

in proportion to the number of motor vehicles registered in the county.

$$\text{County Vehicles Miles} = \text{State Vehicle Miles} \times \frac{\text{County Vehicle Registration}}{\text{State Vehicle Registration}}$$

This data was then divided into 25 mph and 45 mph traffic in proportion to the urban and rural population in the county:

$$\text{County 25 mph vehicle miles} = \text{county vehicle miles} \times \frac{\text{Urban population}}{\text{County population}}$$

$$\text{County 45 mph vehicle miles} = \text{County Vehicle miles} - \text{County 25 mph vehicle miles}$$

b) To Grids

Grid yearly vehicle miles were determined from traffic count and road length data by multiplying the average daily traffic by the route length by 365. All traffic on interstate, limited access and Federal Highways outside city limits was considered as 45 mph traffic. (call these results Vmi^{45}). All other traffic was considered as 25 mph (call these results VMI^{25}).

The county total measured vehicle miles is therefore =

$$\sum VMi^{45} + \sum VMi^{25} = \sum VM$$

The county or ACQR total vehicle miles as determined in 3a

B. Diesel Road Vehicles

1) Assumptions

a) The total diesel fuel used in the state is the sum of the Special Fuel and Interstate Fuel categories as provided by the State of Nebraska.

b) Diesel fuel use is proportional to county motor vehicle registration.

c) In gridded areas diesel fuel use is proportional to the total vehicle miles calculated for automobiles.

2) References and Data Sources

References are the same as for automobile emission calculations.

3) Apportioning Techniques

a) To counties

State diesel fuel is apportioned to the counties in proportion to the county vehicle registration in the county in the same manner as state automobile vehicle miles was apportioned to the counties.

b) To grids

County or ACQR diesel fuel determined in B3a was apportioned to the gridded areas in proportion to the total vehicle miles determined for the grid in the automotive emission calculations:

$$\text{Grid Area Diesel Fuel} = \text{County Diesel Fuel} \times \frac{\text{Grid Vehicle miles}}{\text{County Vehicle Miles}}$$

will be greater than $\sum$ VM.

It is assumed that the resulting difference is all 25 mph traffic ($\sum$ VM_e^{25}). This resulting 25 mph vehicle mile county total was apportioned to the grids in proportion to the total measured Grid vehicle miles ($VM_i^{45} + VM_i^{25}$).

$$\text{Grid Total 25 mph Vehicle Miles} = VM_i^{25} + \sum VM_e^{25} \times \frac{VM_i^{45} + VM_i^{25}}{\sum VM}$$

Grid Total 45 mph vehicle miles = VM_i^{45}.

C. Railroad

1) Assumptions

a) Railroad distillate oil use is proportional to the track mileage within an area.

b) For county apportioning all routes are considered as having two tracks except routes which dead end, which are considered as having a single track.

c) Railroad residual oil is used for yard heating.

2) References and Data Sources

a) Railroad distillate and residual oil use for 1969 from the National Oil Fuel Institute, Inc., New York, N. Y.

b) Nebraska railroad mileage data from a Nebraska State Map published by the Nebraska State Railway Commission, Lincoln, Nebraska.

c) Detailed track data from Coast and Geodetic Survey Quadrangle maps of Lancaster, Douglas, and Sarpy counties.

3) Apportioning Techniques

a) To counties

Railroad Distillate Oil

Railroad distillate oil use was apportioned to the counties in proportion to the active track mileage in that county. All routes were considered to have two tracks, with the exception of dead end routes,

which were assumed to be single track.

County Railroad distillate oil = State Railroad Distillate Oil X $\frac{\text{County track length}}{\text{State track length.}}$

Railroad Residual Oil

Railroad residual oil was assumed to be used for heating of the yard areas. This oil was apportioned to the counties in the following proportions:

Omaha (Douglas Co.) = 5,

Lincoln (Lancaster Co.) = 2 and

Freemont (Dodge Co.), Scotts Bluff (Scotts Bluff Co.)

Grand Island (Hall Co.), Blane (Adams Co.) and

Beatrice (Gage Co.) each = 1

All other counties = 0

County Railroad Residual Oil = State Railroad Residual Oil X

$$\frac{\text{County Proportion}}{12}$$

b) To Grids

Railroad Distillate Oil

County or ACQR railroad distillate oil use was apportioned to the grids in proportion to the railroad track length in the grid. Grid Railroad Distillate = County Railroad Distillate x $\frac{\text{Track Length Grid}}{\text{Track Length County}}$

Railroad Residual

County or ACQR railroad residual oil use was apportioned to the grid areas in proportion to the railroad yard area in the grid.

$$\text{Grid Railroad Residual Oil} = \text{County Railroad Residual Oil} \times \frac{\text{R.R. Yard area grid}}{\text{R. R. Yard area Co.}}$$

D. Vessels

1) Assumptions

Vessel fuel use is proportional to the Missouri River length. River traffic is fairly constant with location along the Missouri River.

2) References and Data Sources

a) Vessel distillate oil use from the National Oil Fuel Institute, New York, N. Y.

b) Missouri River length from maps obtained at the Coast and Geodetic Survey.

3) Apportioning Techniques

a) To Counties

Vessel distillate oil was apportioned to the counties in proportion to the length of the Missouri River bordering the county.

$$\text{County Vessel Distillate Oil} = \text{State Vessel Distillate Oil} \times \frac{\text{County River Length}}{\text{State River Length}}$$

b) To Grids

County or ACQR vessel distillate oil was apportioned to the grid areas in proportion to the Missouri River length along the grid.

$$\text{Grid Vessel Distillate Oil} = \text{County Vessel Distillate Oil} \times \frac{\text{River length Grid}}{\text{River length county}}$$

E. Aircraft

1) Assumptions

The following assumptions made to account for the total number of flights from Omaha's Eppley Field were applied, in proportion, to the other major airports in the state (without the military traffic) which provided data on total yearly flights.

a) Use airline guide data as provided.

b) Of the additional total of approximately 100,000 flights, assume:

500 charter two engine fanjets

500 charter two engine turboprops

500 commercial two engine fanjets

500 commercial two engine turboprops

2200 single engine military jets

Remainder 85% single engine piston

15% twin engine piston

c) The following airports were considered similar to the North Platte Airport and therefore emissions calculated using data provided by North Platte were applied: Chadron, Columbus, Hastings, Kearney, McCook, Norfolk and Sidney.

d) The Scotts Bluff airport activity was considered similar in nature to Grand Island. The Grand Island computed emissions were therefore applied to Scotts Bluff.

2) References and data sources

a) Airline Guide

b) Airport Questionnaires

3) Apportioning Techniques

Pollutants for airports providing sufficient information in the returned questionnaires were hand calculated.

IV. OPEN BURNING

A. Domestic Wastes

1) Assumptions

a) Domestic generated waste rate for the Omaha area can be applied to the remainder of the state.

b) 6.25% of all generated domestic wastes are burned in the Omaha area. This factor can be applied to the state.

2) References and Data Sources

a) Omaha refuse amounts and burned factors from special Omaha study, portions of which were provided to IBM by the Nebraska Division of Air Pollution control.

b) Population data from the "Census of Population, Advanced Report," Census Bureau.

3) Apportioning Techniques

a) To Counties

Total refuse burned in the state was determined as follows:

Total State Refuse burned = State Population X Generation Factor X .0625

This total was apportioned to the counties in proportion to the population of the counties.

$$\text{County refuse burned} = \text{State Refuse burned} \times \frac{\text{County Population}}{\text{State Population}}$$

b) To Grids

The County or ACQR total refuse burned was apportioned to the gridded areas in proportion to the population in the gridded area.

B. Field and Agricultural Burning

1) Assumptions

The identified burning is uniformly distributed throughout the State.

2) References and Data Sources

a) Omaha refuse study previously cited.

b) Article - Sunday World Herald, Omaha, January 31, 1971.

c) Agricultural and field burning provides approximately 684 pounds of refuse per acre. This factor was developed using the Kansas State University (Manhattan, Kansas) estimate of 600 pounds of refuse per acre for agricultural burning and 900 pounds per acre for railroad burning. The reported proportion of railroad burning was 28 percent resulting in the weighted factor of 684 pounds per acre.

d) Nebraska Blue Book for County Areas.

3) Apportioning Techniques

a) To Counties

The state agricultural burning was apportioned to the counties (with the exception of Douglas and Sarpy County) in proportion to the county land area. The Douglas Sarpy tree burning total identified in the

Omaha report was apportioned between Douglas and Sarpy counties in proportion to the county land area. Note that only 2/3 of the total tree wastes identified in the report were assumed to be burned.

$$\text{County burning} = \text{Total burning} \times \frac{\text{County Area}}{\text{Total Area.}}$$

b) To Grid

The County or ACQR total burning was apportioned to the grids in proportion to the grid area.

Section 4 - Area Gridding

Two areas in the State of Nebraska were gridded using the UTM coordinate system. In both cases the grid sizes were previously constrained to 10 x 10, 5 x 5 and 2.5 x 2.5 killometer squares. These areas consisted of Lancaster County containing the Lincoln Standard Metropolitan Statistical Area (SMSA) and Douglas and Sarpy Counties, containing the Nebraska portion of the Omaha SMSA. Grid densities in both cases was based upon land use and population density data available from the local planning agencies and the U. S. Census Bureau. Maps showing the grids established for these areas are presented in Figures 4 and 5.

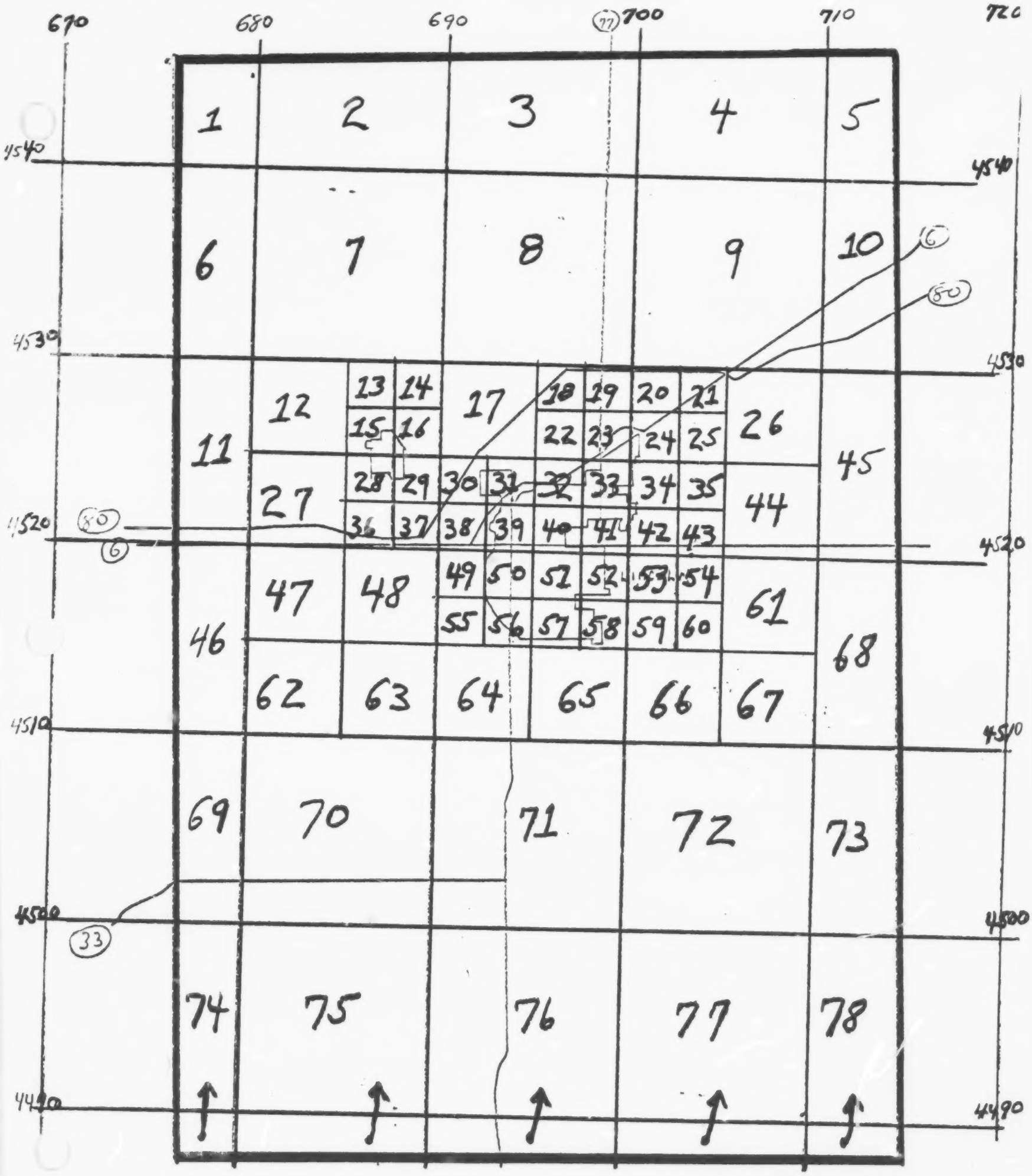


Figure 4 - Lancaster County Grid

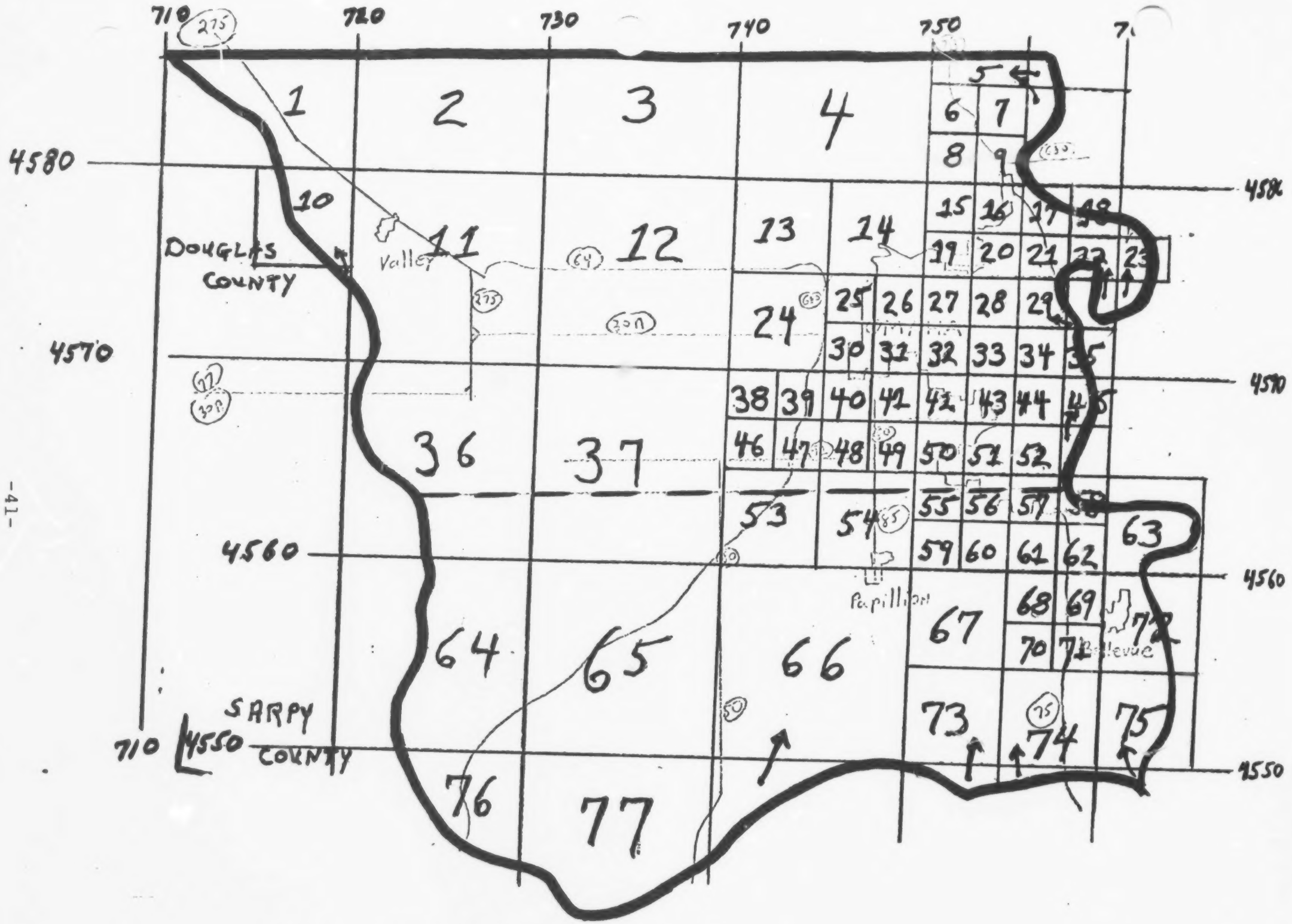


Figure 5 - OMAHA GRID

Section 5 - Nebraska Emission Inventory Data

The data resultant from the anlyses performed during this study are presented in the following pages in two forms: pie charts and Tables. The pie charts present a visual summary of the most important aspects of the collected data. The tabulations provide the detailed results.

The following fuel parameters were used in the calculation of the emitted pollutant amounts. These fuel parameters were determined through inspection of the fuel parameter data provided in some of the point source questionnaires.

Fuel Parameters

Fuel	Heat Content BTU per	Ash Content %	Sulfur Content %
Bituminous Coal	22.0×10^6 per ton	9.0	3.00
Residual Oil	160.0×10^3 per gal.	0	2.00
Distillate Oil	140.0×10^3 per gal.	0	0.50
Natural Gas	1000 per cu. ft.	0	0.0006

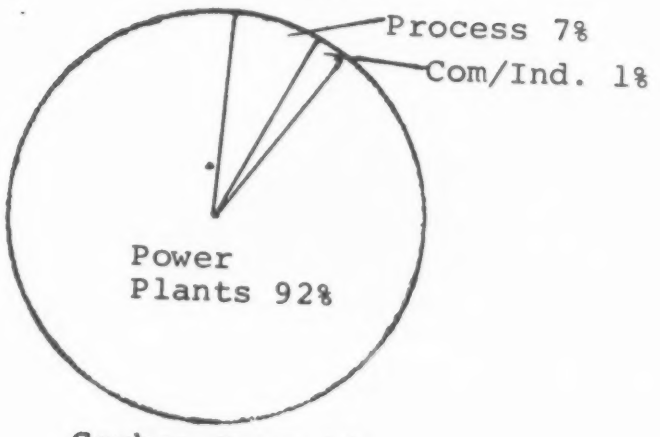
The remainder of this Section presents the analytical data for Area and Point Sources. Data for each type source is summarized by Pie Charts, which are supported by detailed tabulations, according to Air Quality Control Regions. Program listings are also provided which total Area Sources by Air Quality Control Regions.

POLLUTANT SUMMARY

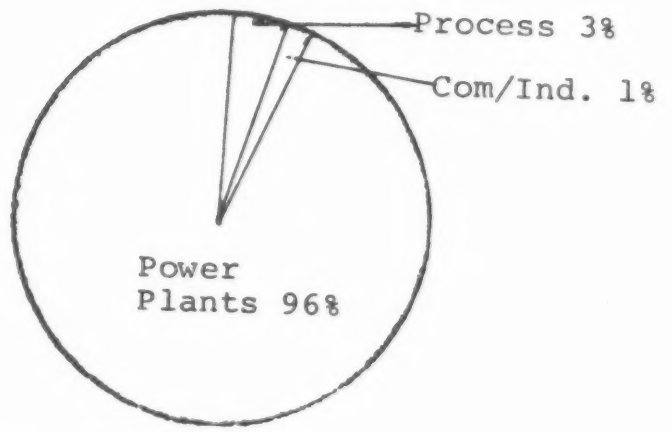
Nebraska Portion of the
Omaha-Council Bluffs Interst. AQCR (085)
1970

POINT SOURCES

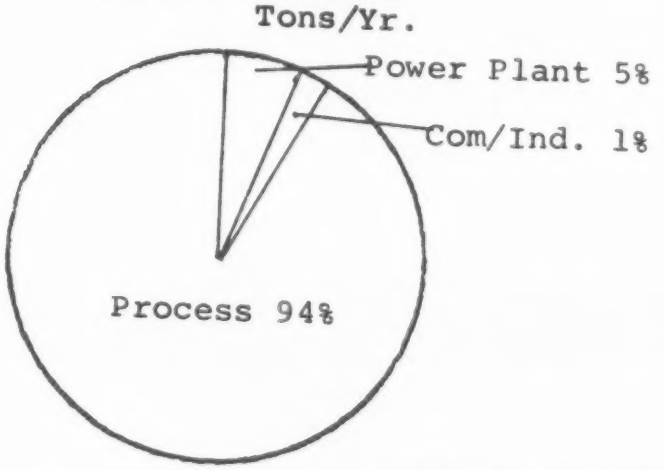
Particulates
Tons/Yr.



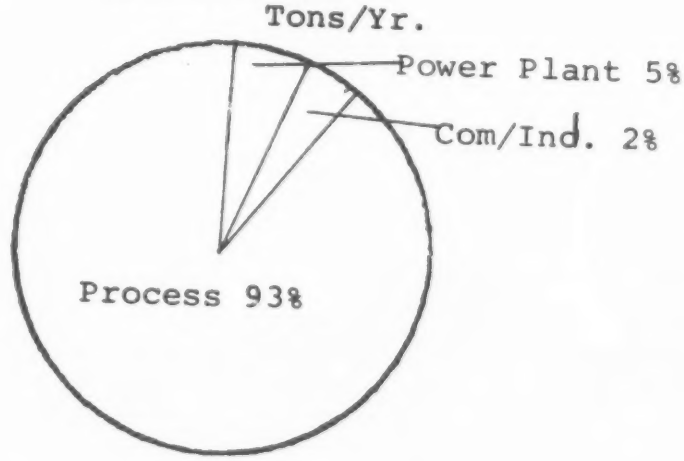
Sulfur Dioxide
Tons/Yr.



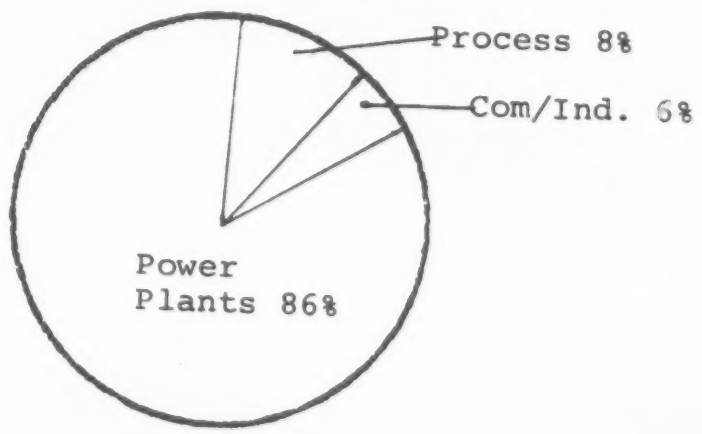
Carbon Monoxide
Tons/Yr.



Hydrocarbons
Tons/Yr.



Nitrogen Oxides
Tons/Yr.

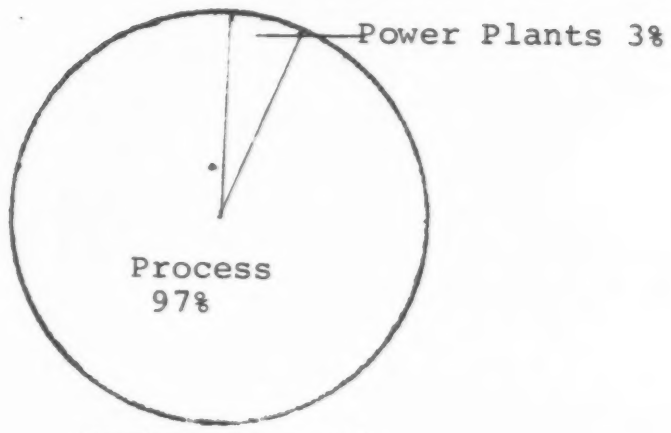


POLLUTANT SUMMARY

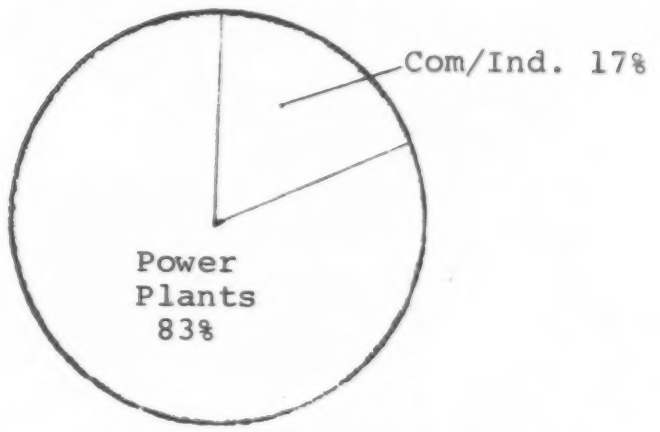
Nebraska, Lincoln, Beatrice-
Fairbury Intrastate (145) AQCR
1970

POINT SOURCES

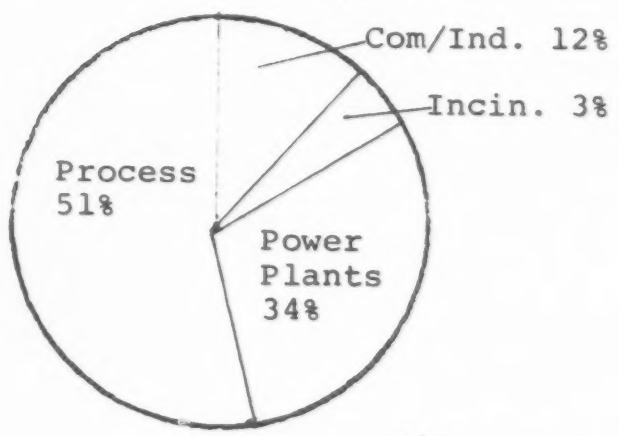
Particulates
Tons/Yr.



Sulfur Dioxide
Tons/Yr.

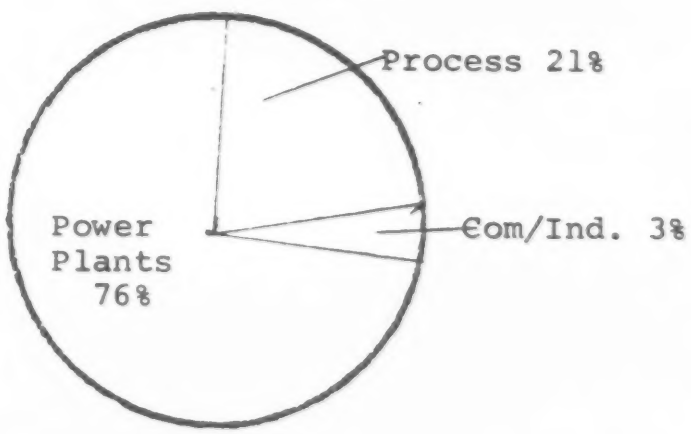


Carbon Monoxide
Tons/Yr.



Hydrocarbons
Tons/Yr.

Nitrogen Oxides
Tons/Yr.

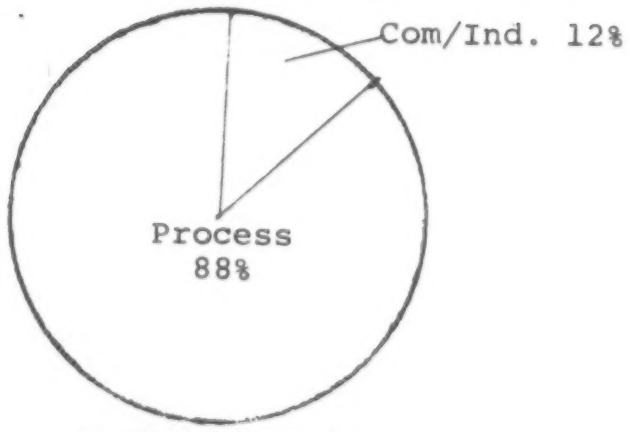


POLLUTANT SUMMARY

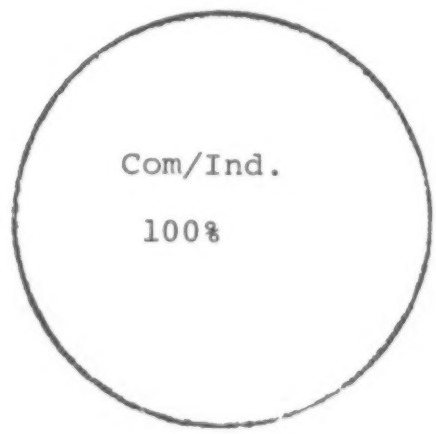
Nebraska Portion of the
Sioux City Interstate AQCR (087)
1970

POINT SOURCES

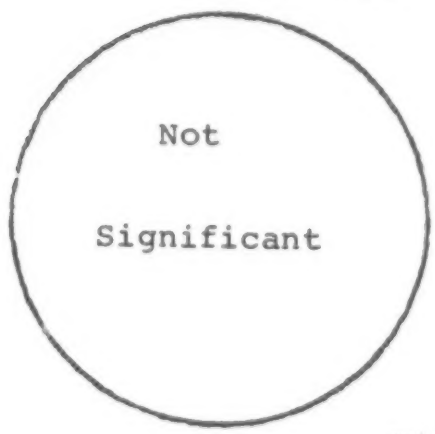
Particulates
Tons/Yr.



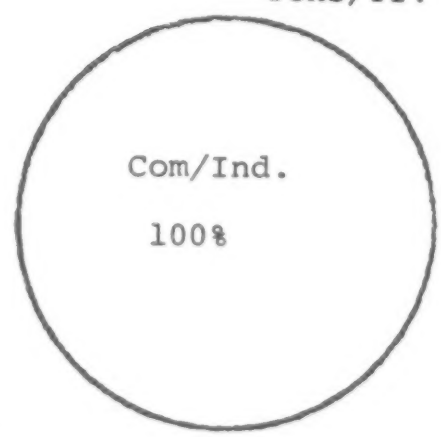
Sulfur Dioxide
Tons/Yr.



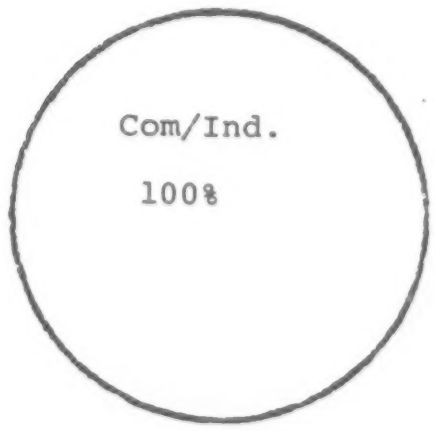
Carbon Monoxide
Tons/Yr.



Hydrocarbons
Tons/Yr.



Nitrogen Oxides
Tons/Yr.

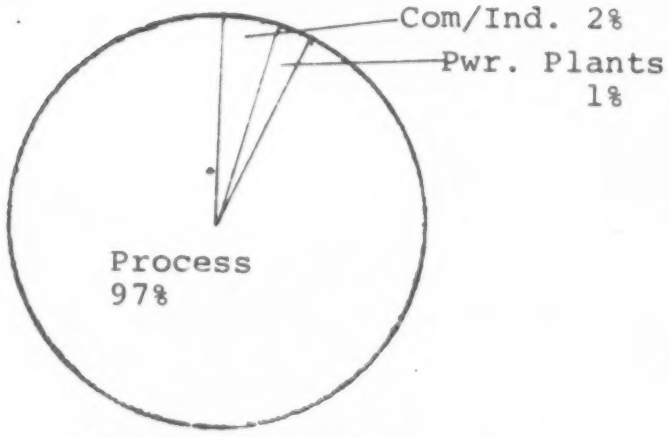


POLLUTANT SUMMARY

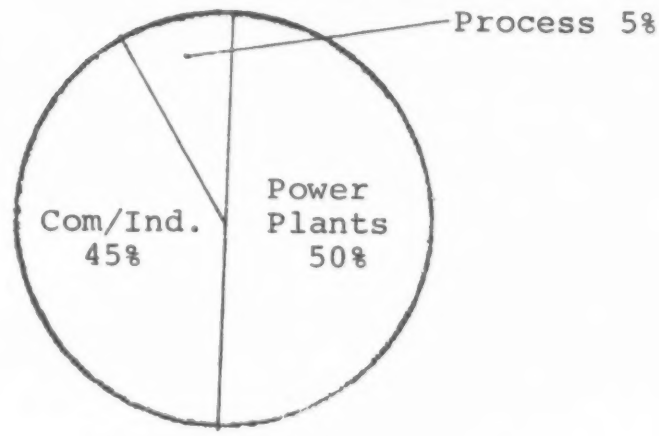
Nebraska-Nebraska Intrastate
146 AQCR
1970

POINT SOURCES

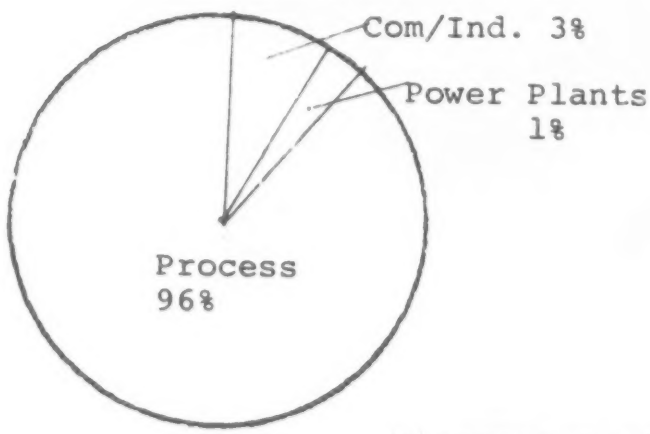
Particulates
Tons/Yr.



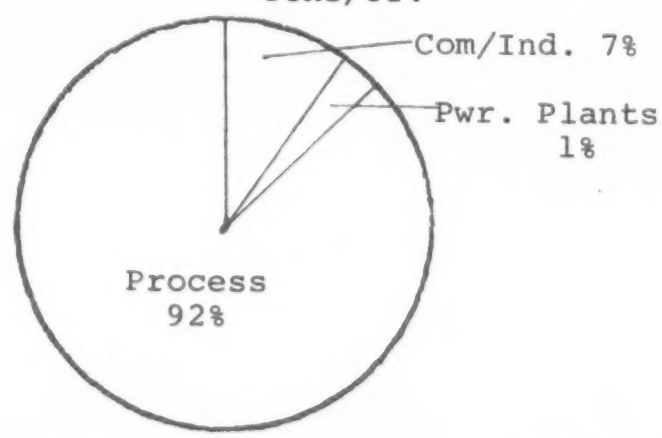
Sulfur Dioxide
Tons/Yr.



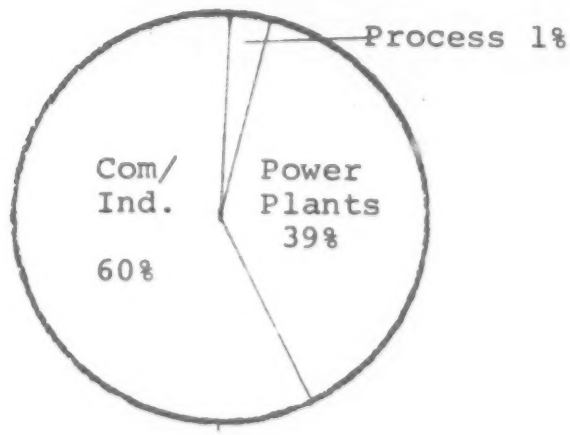
Carbon Monoxide
Tons/Yr.



Hydrocarbons
Tons/Yr.



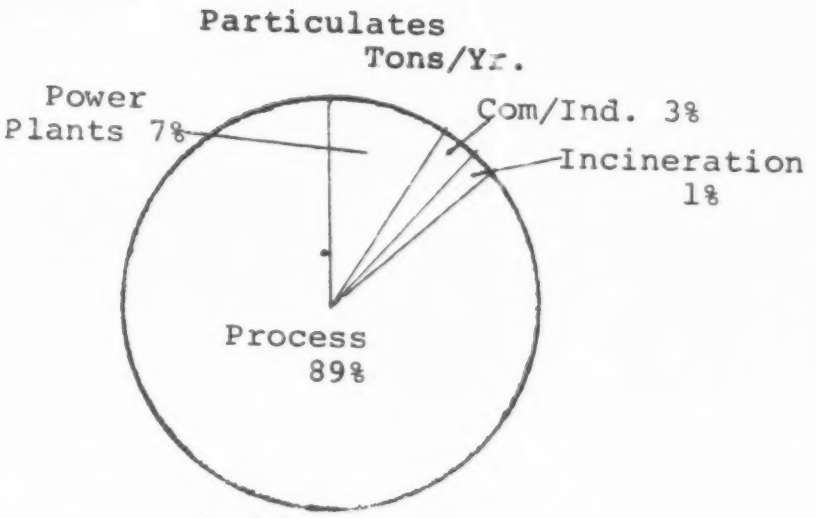
Nitrogen Oxides
Tons/Yr.

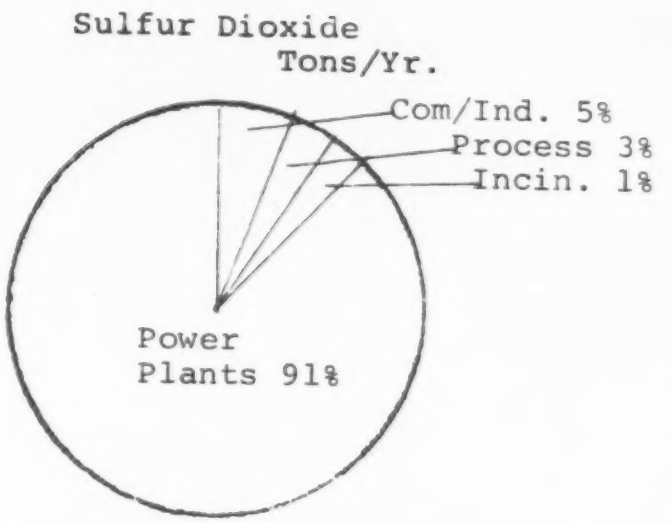


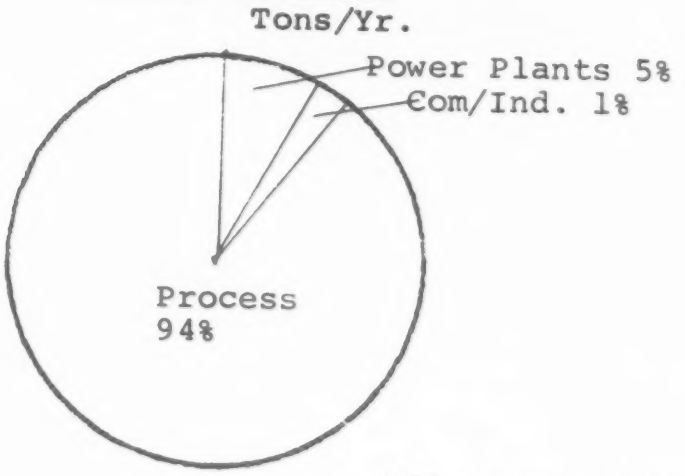
POLLUTANT SUMMARY

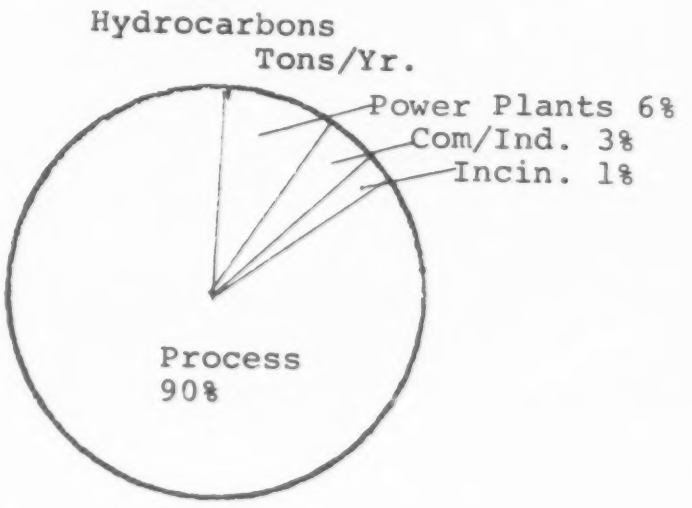
Nebraska - Total State
ACQR (085 + 087 + 145 + 146)
1970

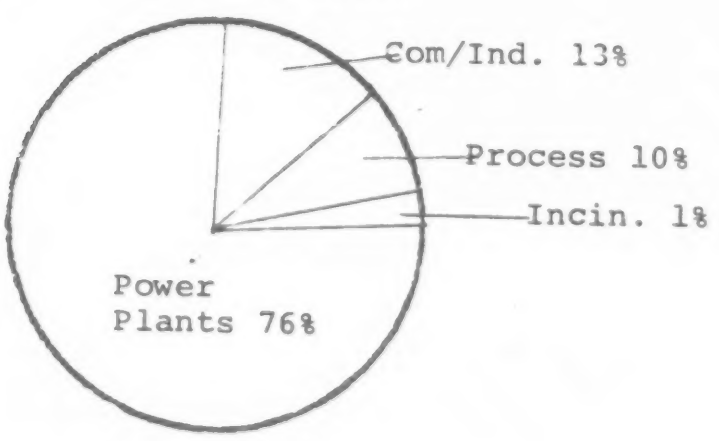
POINT SOURCES











~EMISSIONS INVENTORY SUMMARY~

FOR THE STATE OF Nebraska portion of the
Omaha-Council Bluffs Interstate Air Quality Control Region (085)
DATA REPRESENTATIVE OF CALENDAR YEAR 1970

SOURCE CATEGORY	TONS OF POLLUTANT / YEAR					FUEL ETC	
	PART	SO_2	CO	HC	NO_x	QUANTITY	UNITS
I. FUEL COMBUSTION							
A. COMM-INSTL & IND FUEL-AREA SOURCE							
1. ANTHRACITE COAL							
2. DISTILLATE OIL							
3. NATURAL GAS							
4. WOOD							
5. OTHER (SPECIFY)							
6. TOTAL							
B. COMM-INSTL & IND							
1.a (BITUMINOUS) COAL-AREA SOURCE							
b. (BITUMINOUS) COAL-POINT SOURCE							
2. COKE - POINT SOURCE							
3.a. DISTILLATE OIL-AREA SOURCE							
b. DISTILLATE OIL-POINT SOURCE	26	178	0	5	106	3545	10^3 gal/Yr.
4.a. RESIDUAL OIL-AREA SOURCE							
b. RESIDUAL OIL-POINT SOURCE	31	282	0	4	80	2682	10^3 gal/Yr.
5. a. NATURAL GAS-AREA SOURCE							
b. NATURAL GAS-POINT SOURCE	83	3	15	166	751	9507	10^6 ft³/Yr.
6. PROPANE GAS-POINT SOURCE							
7.a WOOD-AREA SOURCE							
b. WOOD-POINT SOURCE							
8.a. OTHER (SPECIFY)-AREA SOURCE							
b. OTHER (SPECIFY)-POINT SOURCE							
9. TOTAL							
C. STEAM-ELECTRIC POWER PLANT							
1. ANTHRACITE COAL							
2. BITUMINOUS COAL	15536	45022	397	120	10937	7947	Tons/Yr.
3. DISTILLATE OIL	—	—	—	—	—	—	—
4. RESIDUAL OIL	5	205	0	3	69	1257	10^3 gal/Yr.
5. NATURAL GAS	25	6	4	414	4034	20689	10^6 ft³/Yr.
6. OTHER (SPECIFY)							
7. TOTAL							
D. TOTAL FUEL COMBUSTION							
II. PROCESS LOSSES							
A. AREA SOURCES							
B. POINT SOURCES	1222	1677	7321	9491	1490	—	—
III. SOLID WASTE DISPOSAL							
A. INCINERATION							
1.a. ON SITE - AREA SOURCE							
b. ON SITE - POINT SOURCE							
2. MUNICIPAL ETC - POINT SOURCE	5	0	0	0	0	1446	Tons/Yr.
B. OPEN BURNING							
1.a ON-SITE - AREA SOURCE							
b. ON-SITE POINT SOURCE							
2.a. DUMPS - AREA SOURCE							
b. DUMPS - POINT SOURCE							
C. OTHER (SPECIFY) - AREA SOURCE							
D. OTHER (SPECIFY) - POINT SOURCE							
E. TOTAL SOLID WASTE DISPOSAL							
IV. TRANSPORTATION - AREA SOURCE							
A. 1 MOTOR VEHICLES - GASOLINE							
2 MOTOR VEHICLES - DIESEL							
B. OFF-HIGHWAY FUEL USAGE							
C. AIRCRAFT							
D. RAILROAD							
E. VESSELS							
F. GASOLINE HNDLG EVAP LOSSES							
G. OTHER (SPECIFY)							
H. TOTAL TRANSPORTATION							
V. MISCELLANEOUS - AREA SOURCES							
A. AGRICULTURAL BURNING							
B. OTHER (SPECIFY)							
C. TOTAL MISCELLANEOUS							
VI. GRAND TOTAL							
A. AREA SOURCE							
B. POINT SOURCE	16933	47393	7737	10152	17466		
C. TOTAL							

NOT REPRODUCIBLE

~EMISSIONS INVENTORY SUMMARY~

FOR THE STATE OF Nebraska portion of the Sioux City Interstate AIR QUALITY CONTROL REGION (087)
DATA REPRESENTATIVE OF CALENDAR YEAR _____

SOURCE CATEGORY	TONS OF POLLUTANT / YEAR					FUEL ETC	
	PART	SO_2	CO	HC	NO_x	QUANTITY	UNITS
I. FUEL COMBUSTION							
A. RESIDENTIAL FUEL-AREA SOURCE							
1. ANTHRACITE COAL							
2. DISTILLATE OIL							
3. NATURAL GAS							
4. WOOD							
5. OTHER (SPECIFY)							
6. TOTAL							
B. COMM. - INSTL & IND							
1.a. (BITUMINOUS) COAL-AREA SOURCE							
b. (BITUMINOUS) COAL-POINT SOURCE							
2. COKE - POINT SOURCE							
3.a. DISTILLATE OIL-AREA SOURCE							
b. DISTILLATE OIL-POINT SOURCE							
4.a. RESIDUAL OIL-AREA SOURCE	6	31	0	1	26	850	10^3 gal/[illegible]
b. RESIDUAL OIL-POINT SOURCE							
5.a. NATURAL GAS-AREA SOURCE							
b. NATURAL GAS-POINT SOURCE							
6. PROCESSED GAS-POINT SOURCE	3	0	0	7	32	37	10^3 gal/[illegible]
7.a. WOOD-AREA SOURCE							
b. WOOD-POINT SOURCE							
8.a. OTHER (SPECIFY)-AREA SOURCE							
b. OTHER (SPECIFY)-POINT SOURCE							
9. TOTAL							
C. STATIONARY-FED. ELEC. POWER PLANT							
1. ANTHRACITE COAL							
2. BITUMINOUS COAL							
3. DISTILLATE OIL							
4. RESIDUAL OIL							
5. NATURAL GAS							
6. OTHER (SPECIFY)							
7. TOTAL							
D. TOTAL FUEL COMBUSTION							
II. PROCESS LOSSES							
A. AREA SOURCES							
B. POINT SOURCES							
III. SOLID WASTE DISPOSAL	68	0	0	0	0	—	—
A. INCINERATION							
1.a. ON SITE - AREA SOURCE							
b. ON SITE - POINT SOURCE							
2. MUNICIPAL, ETC. - POINT SOURCE							
B. OPEN BURNING							
1.a. ON-SITE - AREA SOURCE							
b. ON-SITE POINT SOURCE							
2.a. DUMPS - AREA SOURCE							
b. DUMPS - POINT SOURCE							
C. 1. OTHER (SPECIFY) - AREA SOURCE							
2. OTHER (SPECIFY) - POINT SOURCE							
D. TOTAL SOLID WASTE DISPOSAL							
IV. TRANSPORTATION - AREA SOURCE							
A. 1. MOTOR VEHICLES - GASOLINE							
2. MOTOR VEHICLES - DIESEL							
B. OFF-HIGHWAY FUEL USAGE							
C. AIRCRAFT							
D. RAILROAD							
E. VESSELS							
F. GASOLINE HNDLG EVAP LOSSES							
G. OTHER (SPECIFY)							
H. TOTAL TRANSPORTATION							
V. MISCELLANEOUS - AREA SOURCES							
A. AGRICULTURAL BURNING							
B. OTHER (SPECIFY)							
C. TOTAL MISCELLANEOUS							
VI. GRAND TOTAL							
A. AREA SOURCE	77	31	0	8	58		
B. POINT SOURCE							
C. TOTAL							

NOT REPRODUCIBLE

~EMISSIONS INVENTORY SUMMARY~

FOR THE STATE OF Nebraska, Lincoln, Beatrice-Fairbury Intrastate (145) AIR QUALITY CONTROL REGION
DATA REPRESENTATIVE OF CALENDAR YEAR 1970

SOURCE CATEGORY	TONS OF POLLUTANT / YEAR					FUEL ETC	
	PART	SO_2	CO	HC	NO_x	QUANTITY	UNITS
I. FUEL COMBUSTION							
A. RESIDENTIAL FUEL-AREA SOURCE							
1. ANTHRACITE COAL							
2. DISTILLATE OIL							
3. NATURAL GAS							
4. WOOD							
5. OTHER (SPECIFY)							
6. TOTAL							
B. COMM.-INSTL & IND							
1.a. (BITUMINOUS) COAL-AREA SOURCE							
b. (BITUMINOUS) COAL-POINT SOURCE	48	399	10	9	18	6000	Tons/Yr.
2. COKE-POINT SOURCE							
3.a. DISTILLATE OIL-AREA SOURCE							
b. DISTILLATE OIL-POINT SOURCE	3	9	0	1	13	392	10^3 gal/Yr.
4.a. RESIDUAL OIL-AREA SOURCE							
b. RESIDUAL OIL-POINT SOURCE	15	205	0	2	39	1290	10^3 gal/Yr.
5. a. NATURAL GAS-AREA SOURCE							
b. NATURAL GAS-POINT SOURCE	22	31	1	40	188	2498	10^6 ft^3/Yr.
6. PROCESS GAS-POINT SOURCE							
7.a. WOOD-AREA SOURCE							
b. WOOD-POINT SOURCE							
8.a. OTHER (SPECIFY)-AREA SOURCE							
b. OTHER (SPECIFY)-POINT SOURCE							
9. TOTAL							
C. STEAM-ELECTRIC POWER PLANT							
1. ANTHRACITE COAL							
2. BITUMINOUS COAL	800	3187	92	239	4821	1893385	Tons/Yr.
3. DISTILLATE OIL	1	62	0	2	36	673	10^3 gal/Yr.
4. RESIDUAL OIL	17	1	1	158	1545	7922	10^3 gal/Yr.
5. NATURAL GAS							
6. OTHER (SPECIFY)							
7. TOTAL							
D. TOTAL FUEL COMBUSTION							
II. PROCESS LOSSES							
A. AREA SOURCES							
B. POINT SOURCES	35090	0	138	615	1721	—	—
III. SOLID WASTE DISPOSAL							
A. INCINERATION							
1.a. ON SITE - AREA SOURCE							
b. ON SITE - POINT SOURCE							
2. MUNICIPAL ETC. - POINT SOURCE	5	1	8	2	2	1498	Tons/Yr.
B. OPEN BURNING							
1.a. ON-SITE - AREA SOURCE							
b. ON-SITE POINT SOURCE							
2.a. DUMPS - AREA SOURCE							
b. DUMPS - POINT SOURCE							
C. 1. OTHER (SPECIFY) - AREA SOURCE							
2. OTHER (SPECIFY) - POINT SOURCE							
D. TOTAL SOLID WASTE DISPOSAL							
IV. TRANSPORTATION - AREA SOURCE							
A. 1. MOTOR VEHICLES - GASOLINE							
2. MOTOR VEHICLES - DIESEL							
B. OFF-HIGHWAY FUEL USAGE							
C. AIRCRAFT							
D. RAILROAD							
E. VESSELS							
F. GASOLINE HNDLG EVAP LOSSES							
G. OTHER (SPECIFY)							
H. TOTAL TRANSPORTATION							
V. MISCELLANEOUS-AREA SOURCES							
A. AGRICULTURAL BURNING							
B. OTHER (SPECIFY)							
C. TOTAL MISCELLANEOUS							
VI. GRAND TOTAL							
A. AREA SOURCE							
B. POINT SOURCE	36001	3893	270	1088	8383		
C. TOTAL							

NOT REPRODUCIBLE

~EMISSIONS INVENTORY SUMMARY~

FOR THE STATE OF Nebraska - Nebraska Intrastate
(146)
AIR QUALITY CONTROL REGION
DATA REPRESENTATIVE OF CALENDAR YEAR 1970

SOURCE CATEGORY	TONS OF POLLUTANT / YEAR					FUEL ETC	
	PART	SO_2	CO	HC	NO_x	QUANTITY	UNITS
I. FUEL COMBUSTION							
A. RESIDENTIAL FUEL-AREA SOURCE							
1. (ANTHRACITE) COAL							
2. DISTILLATE OIL							
3. NATURAL GAS							
4. WOOD							
5. OTHER (SPECIFY)							
6. TOTAL							
B. COMM - INSTL & IND							
1.a. (BITUMINOUS) COAL-AREA SOURCE							
b. (BITUMINOUS) COAL-POINT SOURCE	2437	1124	91	90	956	117079	Tons/Yr.
2. COKE - POINT SOURCE							
3.a. DISTILLATE OIL-AREA SOURCE							
b. DISTILLATE OIL-POINT SOURCE	36	228	0	9	186	6207	10^3 gal/Yr.
4.a. RESIDUAL OIL - AREA SOURCE							
b. RESIDUAL OIL - POINT SOURCE	6	69	0	1	18	581	10^3 gal/Yr.
5.a. NATURAL GAS - AREA SOURCE							
b. NATURAL GAS - POINT SOURCE	172	6	5	426	1867	22516	10^6 ft³/Yr.
6. PROCESS GAS - POINT SOURCE							
7.a. WOOD - AREA SOURCE							
b. WOOD - POINT SOURCE							
8.a. OTHER (SPECIFY) - AREA SOURCE							
b. OTHER (SPECIFY) - POINT SOURCE							
9. TOTAL							
C. ELECTRIC - ELECTRIC POWER PLANT							
1. ANTHRACITE COAL							
2. BITUMINOUS COAL	747	1528	18	7	333	28814	Tons/Yr.
3. DISTILLATE OIL	2	20	0	0	17	1766	10^3 gal/Yr.
4. RESIDUAL OIL	3	41	0	2	39	751	10^3 gal/Yr.
5. NATURAL GAS	23	1	0	93	1569	5417	10^6 ft³/Yr.
6. OTHER (SPECIFY)							
7. TOTAL							
D. TOTAL FUEL COMBUSTION							
II. PROCESS LOSSES	104416	128	6107	6044	72		
A. AREA SOURCES							
B. POINT SOURCES							
III. SOLID WASTE DISPOSAL							
A. INCINERATION							
1.a. ON SITE - AREA SOURCE							
b. ON SITE - POINT SOURCE							
2. MUNICIPAL ETC. - POINT SOURCE	2	0	11	4	0	250	Tons/Yr.
B. OPEN BURNING							
1.a. ON-SITE - AREA SOURCE							
b. ON-SITE POINT SOURCE							
2.a. DUMPS - AREA SOURCE							
b. DUMPS - POINT SOURCE							
C. 1. OTHER (SPECIFY) - AREA SOURCE							
2. OTHER (SPECIFY) - POINT SOURCE							
D. TOTAL SOLID WASTE DISPOSAL							
IV. TRANSPORTATION - AREA SOURCE							
A. 1. MOTOR VEHICLES - GASOLINE							
2. MOTOR VEHICLES - DIESEL							
B. OFF-HIGHWAY FUEL USAGE							
C. AIRCRAFT							
D. RAILROAD							
E. VESSELS							
F. GASOLINE HNDLG EVAP LOSSES							
G. OTHER (SPECIFY)							
H. TOTAL TRANSPORTATION							
V. MISCELLANEOUS - AREA SOURCES							
A. AGRICULTURAL BURNING							
B. OTHER (SPECIFY)							
C. TOTAL MISCELLANEOUS							
VI. GRAND TOTAL							
A. AREA SOURCE							
B. POINT SOURCE	107920	3155	3079	7083	5078		
C. TOTAL							

NOT REPRODUCIBLE

~EMISSIONS INVENTORY SUMMARY~

FOR THE STATE OF Nebraska - Total State
(085 + 087 + 145 + 146) AIR QUALITY CONTROL REGION
DATA REPRESENTATIVE OF CALENDAR YEAR 1970

SOURCE CATEGORY	TONS OF POLLUTANT / YEAR					FUEL	
	PART	SO_2	CO	HC	NO_x	QUANTITY	UNITS
I. FUEL COMBUSTION							
A. RESIDENTIAL FUEL-AREA SOURCE							
1. ANTHRACITE COAL							
2. DISTILLATE OIL							
3. NATURAL GAS							
4. WOOD							
5. OTHER (SPECIFY)							
6. TOTAL							
B. COMM.-INSTL & IND							
1.a. (BITUMINOUS) COAL-AREA SOURCE							
b. (BITUMINOUS) COAL-POINT SOURCE	2485	1523	121	49	974	123079	Tons/Yr
2. COKE - POINT SOURCE							
3.a. DISTILLATE OIL-AREA SOURCE							
b. DISTILLATE OIL-POINT SOURCE	71	446	0	16	331	10994	10^3 gal/Yr
4.a. RESIDUAL OIL-AREA SOURCE							
b. RESIDUAL OIL-POINT SOURCE	52	556	0	7	137	4553	10^3 gal/Yr
5.a. NATURAL GAS-AREA SOURCE							
b. NATURAL GAS-POINT SOURCE	280	40	21	639	2838	34892	10^6 ft³/Yr
6. PROCESS GAS-POINT SOURCE							
7.a. WOOD-AREA SOURCE							
b. WOOD-POINT SOURCE							
8.a. OTHER (SPECIFY)-AREA SOURCE							
b. OTHER (SPECIFY)-POINT SOURCE							
9. TOTAL							
C. ELECTRIC POWER PLANT							
1. ANTHRACITE COAL							
2. BITUMINOUS COAL	17073	49727	507	386	16091	1006680	Tons/Yr
3. DISTILLATE OIL	2	20	0	0	17	1766	10^3 gal/Yr
4. RESIDUAL OIL	9	308	0	7	143	2711	10^3 gal/Yr
5. NATURAL GAS	65	8	5	665	7148	34028	10^6 ft³/Yr
6. OTHER (SPECIFY)							
7. TOTAL							
D. TOTAL FUEL COMBUSTION							
II. PROCESS LOSSES							
A. AREA SOURCES							
B. POINT SOURCES	140872	1915	10413	16557	3204		
III. SOLID WASTE DISPOSAL							
A. INCINERATION							
1.a. ON SITE - AREA SOURCE							
b. ON SITE - POINT SOURCE							
2. MUNICIPAL ETC - POINT SOURCE	12	1	19	6	2	3194	Tons/Yr
B. OPEN BURNING							
1.a. ON-SITE - AREA SOURCE							
b. ON-SITE POINT SOURCE							
2.a. DUMPS - AREA SOURCE							
b. DUMPS - POINT SOURCE							
C. OTHER (SPECIFY) - AREA SOURCE							
D. OTHER (SPECIFY) - POINT SOURCE							
E. TOTAL SOLID WASTE DISPOSAL							
IV. TRANSPORTATION - AREA SOURCE							
A. 1. MOTOR VEHICLES - GASOLINE							
2. MOTOR VEHICLES - DIESEL							
B. OFF-HIGHWAY FUEL USAGE							
C. AIRCRAFT							
D. RAILROAD							
E. VESSELS							
F. GASOLINE HNDLG EVAP LOSSES							
G. OTHER (SPECIFY)							
H. TOTAL TRANSPORTATION							
V. MISCELLANEOUS - AREA SOURCES							
A. AGRICULTURAL BURNING							
B. OTHER (SPECIFY)							
C. TOTAL MISCELLANEOUS							
VI. GRAND TOTAL							
A. AREA SOURCE							
B. POINT SOURCE	160921	54454	11086	18392	30985		
C. TOTAL							

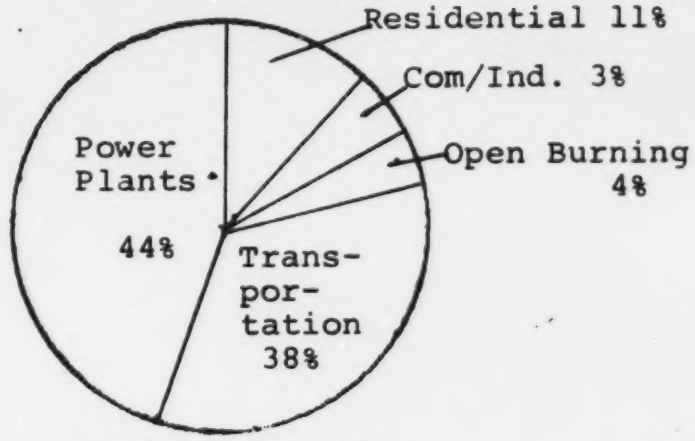
POLLUTANT SUMMARY

NEBRASKA

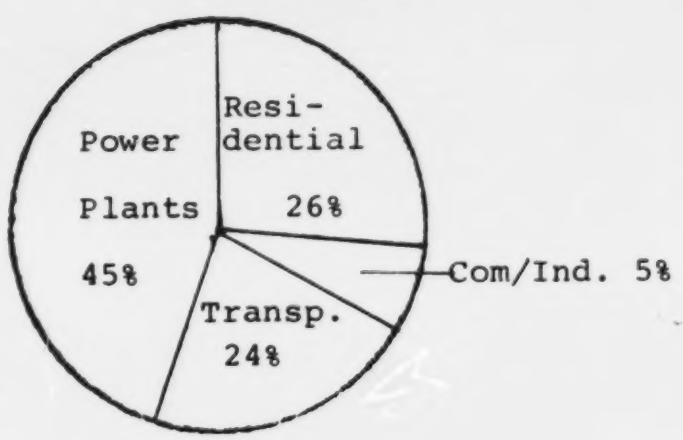
Douglas/Sarpy
Region 85

AREA SOURCES

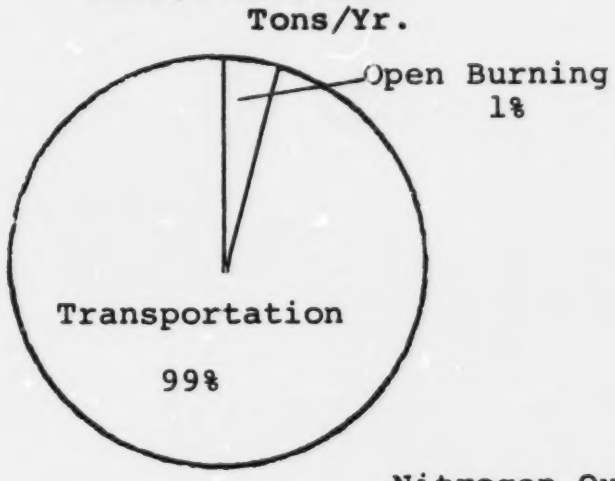
Particulates
Tons/Yr.



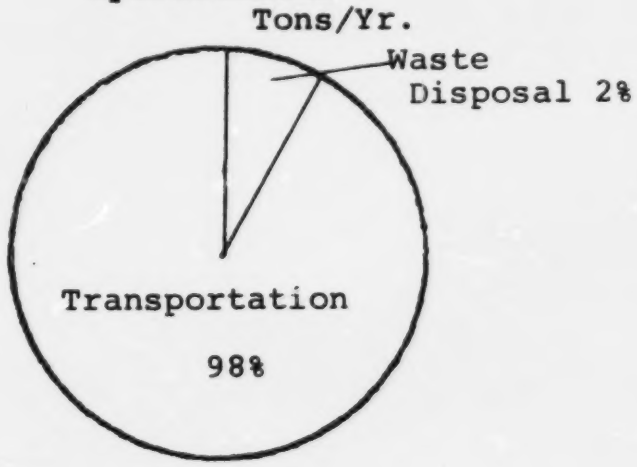
Sulfur Dioxide
Tons/Yr.



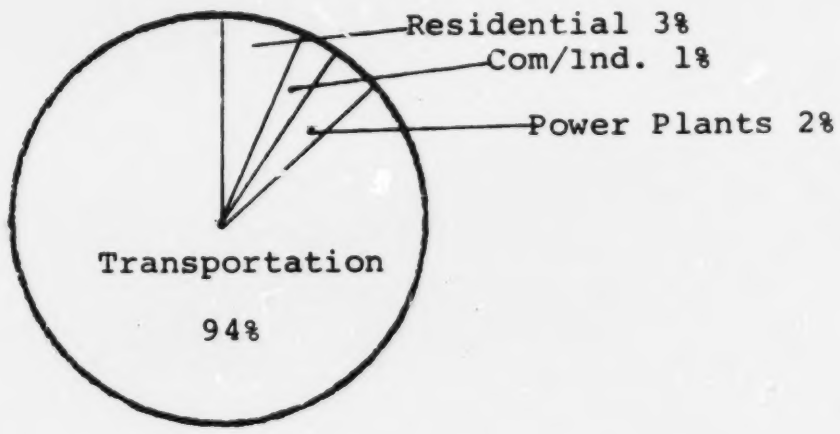
Carbon Monoxide
Tons/Yr.



Hydrocarbons
Tons/Yr.



Nitrogen Oxides
Tons/Yr.



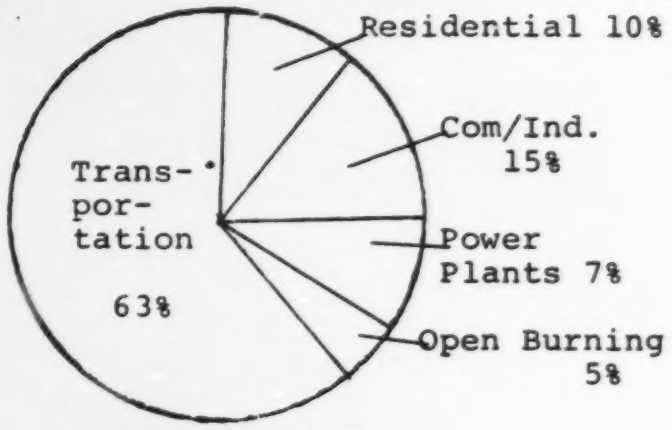
POLLUTANT SUMMARY

NEBRASKA

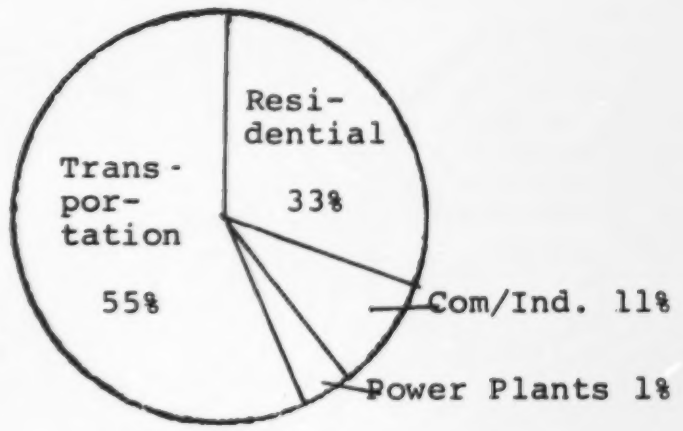
REGION 87
Dakota

AREA SOURCES

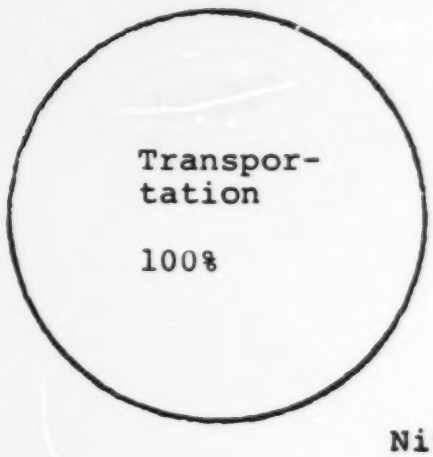
Particulates
Tons/Yr.



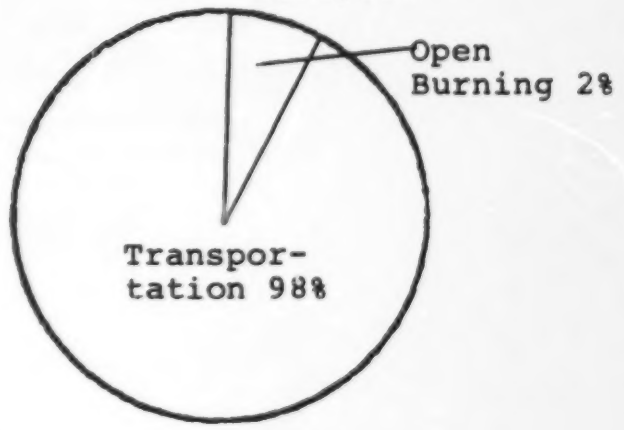
Sulfur Dioxide
Tons/Yr.



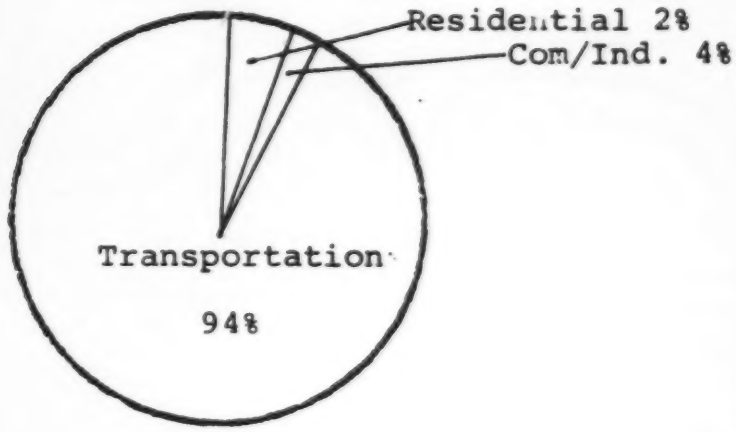
Carbon Monoxide
Tons/Yr.



Hydrocarbons
Tons/Yr.



Nitrogen Oxides
Tons/Yr.



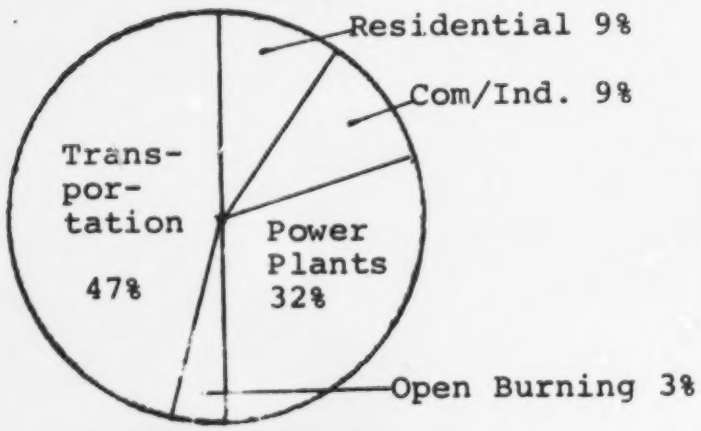
POLLUTANT SUMMARY

NEBRASKA

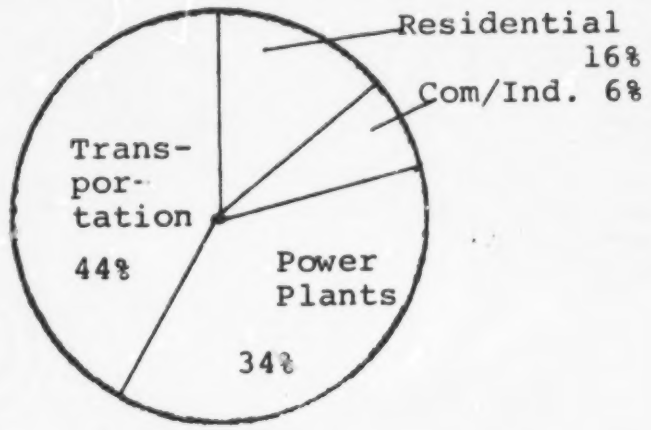
Region 145
(Lancaster/Gage/Thayer/Jefferson)

AREA SOURCES

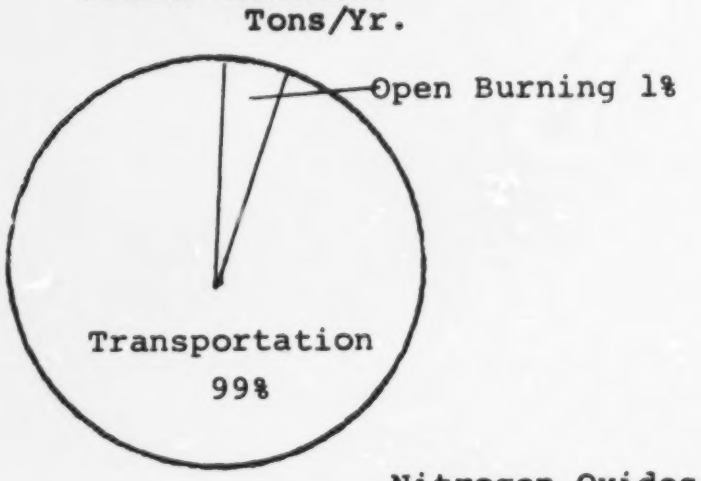
Particulates
Tons/Yr.



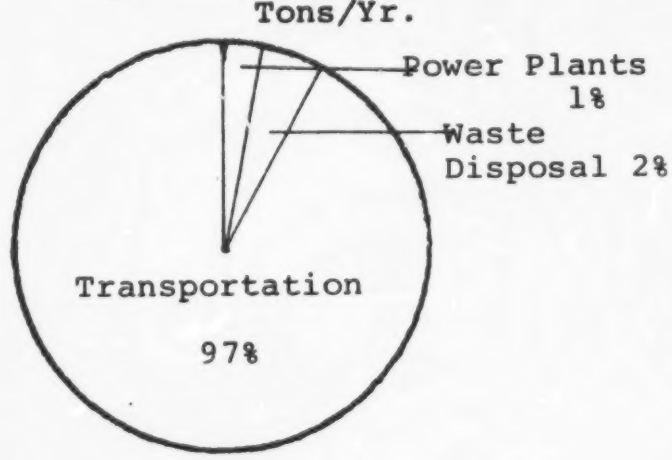
Sulfur Dioxide
Tons/Yr.



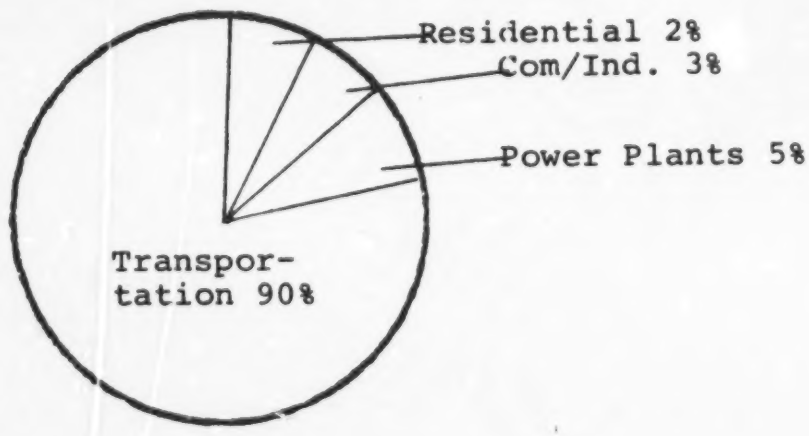
Carbon Monoxide
Tons/Yr.



Hydrocarbons
Tons/Yr.



Nitrogen Oxides
Tons/Yr.



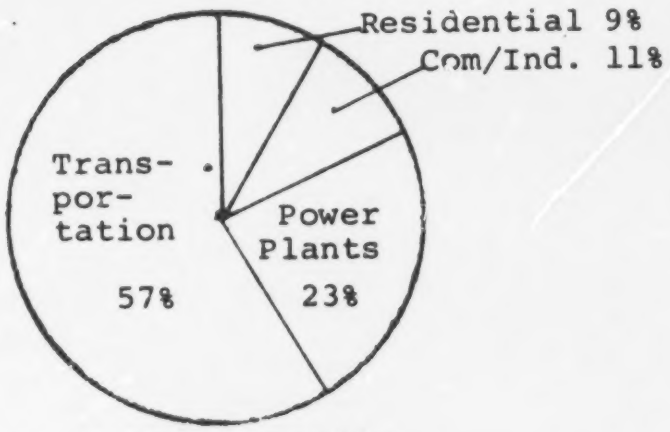
POLLUTANT SUMMARY

NEBRASKA

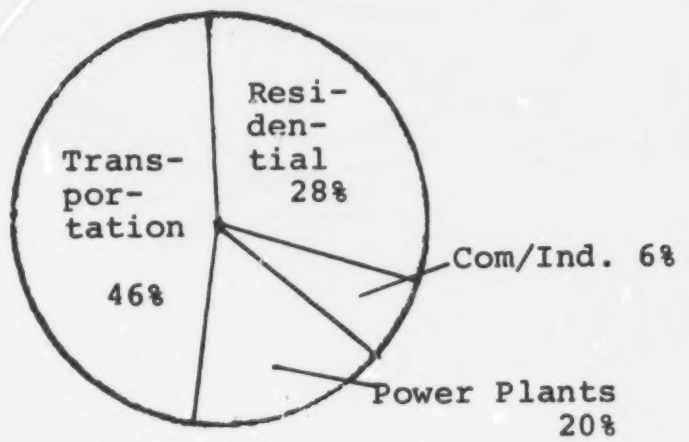
Region 146
(All Others)

AREA SOURCES

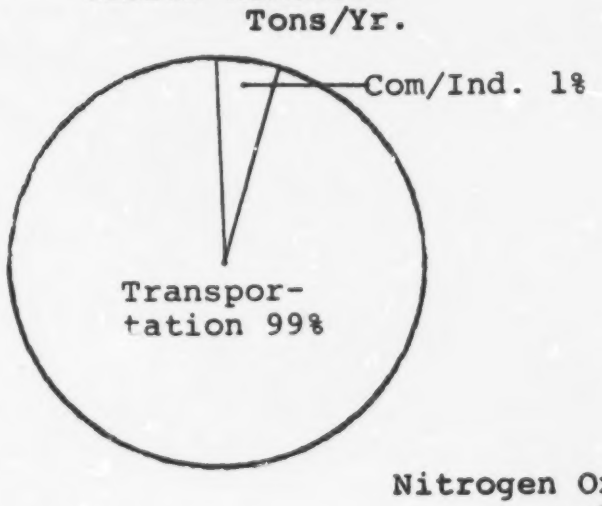
Particulates
Tons/Yr.



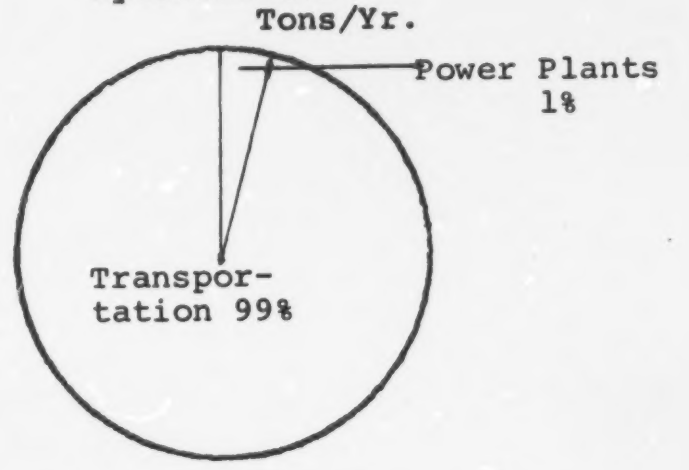
Sulfur Dioxide
Tons/Yr.



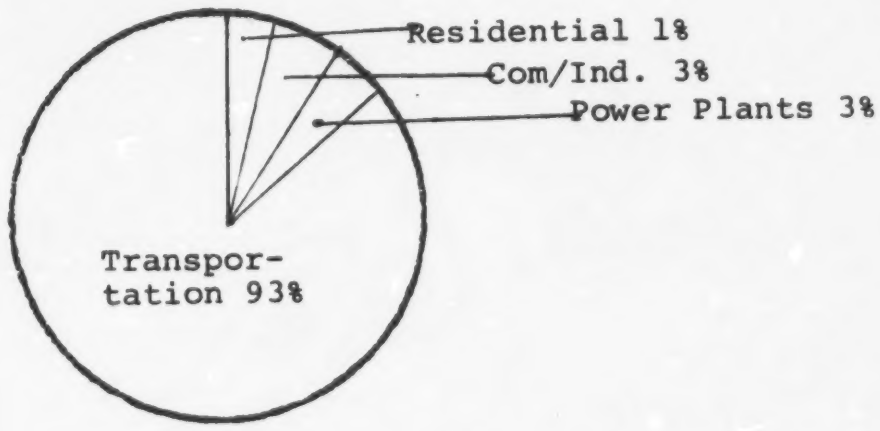
Carbon Monoxide
Tons/Yr.



Hydrocarbons
Tons/Yr.



Nitrogen Oxides
Tons/Yr.

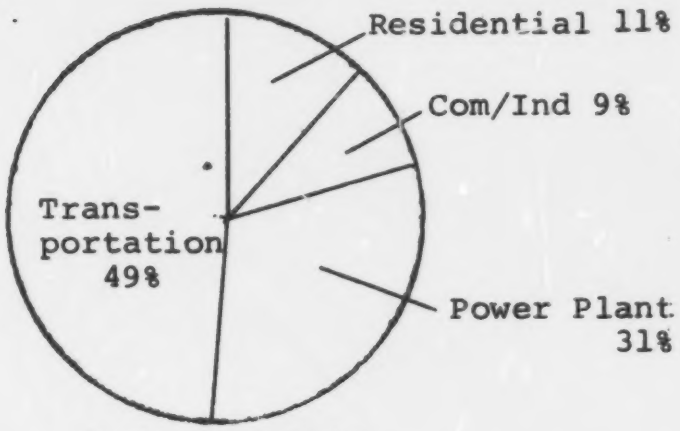


POLLUTANT SUMMARY

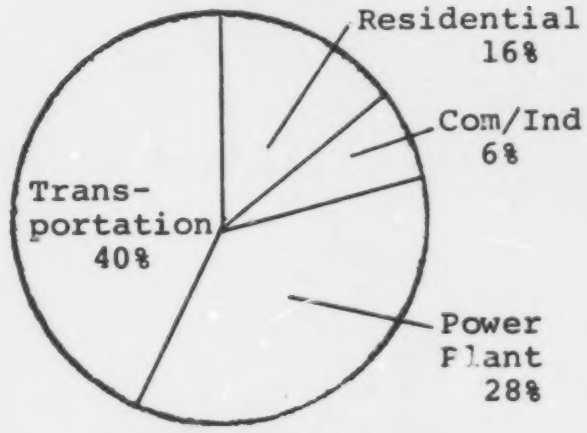
NEBRASKA- Total State

Area Sources

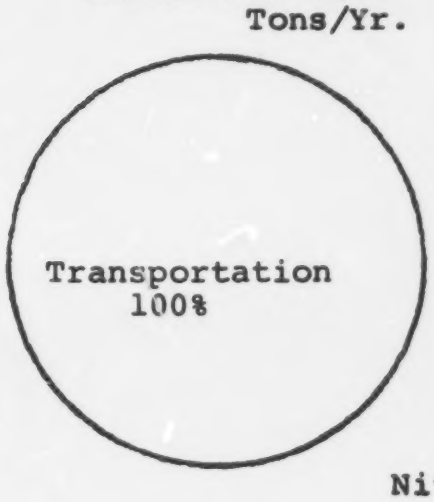
Particulates
Tons/Yr.



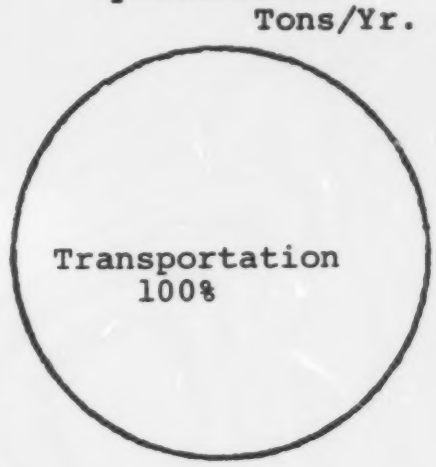
Sulfur Dioxide
Tons/Yr.



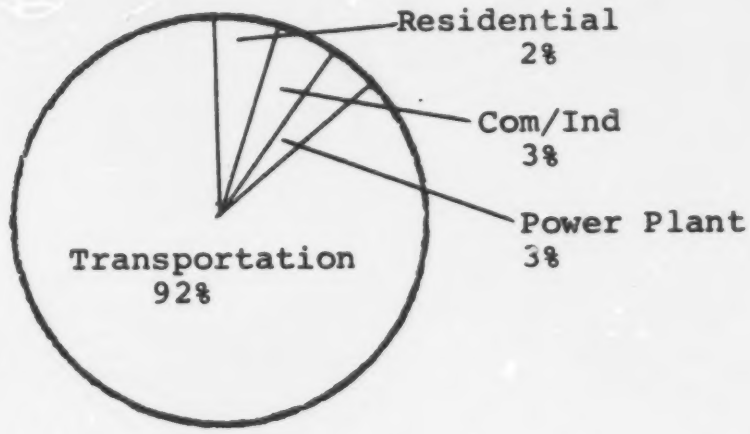
Carbon Monoxide
Tons/Yr.



Hydrocarbons
Tons/Yr.



Nitrogen Oxides
Tons/Yr.



~EMISSIONS INVENTORY SUMMARY~

FOR THE STATE OF NEBRASKA - TOTAL STATE
(085-087-145-146) AIR QUALITY CONTROL REGION
DATA REPRESENTATIVE OF CALENDAR YEAR ————————

SOURCE CATEGORY	TONS OF POLLUTANT / YEAR					FUEL ETC.	
	PART	SO_3	CO	HC	NO_x	QUANTITY	UNITS
I. FUEL COMBUSTION							
A. RESIDENTIAL FUEL-AREA SOURCE							
1. (ANTHRACITE) COAL							
2. DISTILLATE OIL							
3. NATURAL GAS							
4. WOOD							
5. OTHER (SPECIFY)							
6. TOTAL	1131	4213	866	405	2499		
B. COMM-INSTL & IND							
1.a. (BITUMINOUS) COAL-AREA SOURCE							
b. (BITUMINOUS) COAL-POINT SOURCE							
2. COKE-POINT SOURCE							
3.a. DISTILLATE OIL-AREA SOURCE							
b. DISTILLATE OIL-POINT SOURCE							
4.a. RESIDUAL OIL-AREA SOURCE							
b. RESIDUAL OIL-POINT SOURCE							
5.a. NATURAL GAS-AREA SOURCE							
b. NATURAL GAS-POINT SOURCE							
6. PROCESS GAS-POINT SOURCE							
7.a. WOOD-AREA SOURCE							
b. WOOD-POINT SOURCE							
8.a. OTHER (SPECIFY)-AREA SOURCE							
b. OTHER (SPECIFY)-POINT SOURCE							
9. TOTAL	1004	911	966	400	3893		
C. STEAM-ELECTRIC POWER PLANT							
1. ANTHRACITE COAL							
2. BITUMINOUS COAL							
3. DISTILLATE OIL							
4. RESIDUAL OIL							
5. NATURAL GAS							
6. OTHER (SPECIFY)							
7. TOTAL	3368	4439	58	336	4377		
D. TOTAL FUEL COMBUSTION							
II. PROCESS LOSSES							
A. AREA SOURCES							
B. POINT SOURCES							
III. SOLID WASTE DISPOSAL							
A. INCINERATION							
1.a. ON SITE - AREA SOURCE							
b. ON SITE - POINT SOURCE							
2. MUNICIPAL ETC. - POINT SOURCE							
B. OPEN BURNING							
1.a. ON-SITE - AREA SOURCE							
b. ON-SITE POINT SOURCE							
2.a. DUMPS - AREA SOURCE							
b. DUMPS - POINT SOURCE							
C.1. OTHER (SPECIFY) - AREA SOURCE							
2. OTHER (SPECIFY) - POINT SOURCE							
D. TOTAL SOLID WASTE DISPOSAL	297	17	1877	1072	111		
IV. TRANSPORTATION - AREA SOURCE							
A.1. MOTOR VEHICLES - GASOLINE							
2. MOTOR VEHICLES - DIESEL							
B. OFF-HIGHWAY FUEL USAGE							
C. AIRCRAFT							
D. RAILROAD							
E. VESSELS							
F. GASOLINE HNDLG EVAP LOSSES							
G. OTHER (SPECIFY)							
H. TOTAL TRANSPORTATION	5623	6485	118495	17506	138962		
V. MISCELLANEOUS-AREA SOURCES							
A. AGRICULTURAL BURNING							
B. OTHER (SPECIFY)							
C. TOTAL MISCELLANEOUS	156		916	179	19		
VI. GRAND TOTAL							
A. AREA SOURCE	1157	1651	120102	17421	140322		
B. POINT SOURCE							
C. TOTAL							

SOURCE NUMBER 1 REGION NUMBER 08SPOLITICAL JURISDICTION 0 COUNTY NAME TOTAL COORDINATES X 0.0 Y 0.0 AREA 0.0

	PARTICULATES		SULFUR OXIDES		CARBON MONOXIDE		HYDROCARBONS		NITROUS OXIDES		FUEL TOTAL	
	ACTUAL	EXPECTED	ACTUAL	EXPECTED	ACTUAL	EXPECTED	ACTUAL	EXPECTED	ACTUAL	EXPECTED	ACTUAL	EXPECTED
DOMESTIC												
COAL	0.		0.		0.		0.		0.		0.	
OIL	150.		1079.		75.		45.		180.		29971.	
NATL.GAS	169.		5.		177.		71.		665.		17744.	
COMM&IND												
COAL	0.		0.		0.		0.		0.		0.	
RES.OIL	11.		152.		0.		1.		29.		958.	
DIST.OIL	7.		34.		0.		1.		28.		937.	
NATL.GAS	82.		3.		87.		35.		326.		8681.	
NON-PT												
COAL	1174.		1144.		20.		10.		151.		20073.	
RES.OIL	37.		506.		0.		5.		96.		3184.	
DIST.OIL	38.		184.		1.		8.		153.		5116.	
NATL.GAS	32.		1.		1.		72.		313.		3578.	
WOOD	0.		0.		0.		0.		0.		0.	
OPEN BRN	91.		6.		481.		170.		34.		11329.	
INCINER	0.		0.		0.		0.		0.		0.	
SOLVENT	0.		0.		0.		612.		0.		612.	
VESSELS	1.		2.		2.		1.		2.		58.	
RAILRD	26.		66.		72.		51.		77.		2043.	
DIESEL	232.		417.		3012.		602.		3151.		18537.	
OTHER	0.		0.		0.		2091.		0.		199119.	
AS 25MPH	633.		384.		253298.		33773.		17942.		1918927.	
AS 45MPH	222.		134.		51430.		7715.		7347.		667925.	
OTHER	0.		0.		0.		0.		0.		0.	
ADDPOL												
1	0.		0.		0.		0.		0.			
2	0.		0.		0.		0.		0.			
3	0.		0.		0.		0.		0.			
4	0.		0.		0.		0.		0.			
5	0.		0.		0.		0.		0.			
6	0.		0.		0.		0.		0.			
7	0.		0.		0.		0.		0.			
8	0.		0.		0.		0.		0.			
9	0.		0.		0.		0.		0.			
10	0.		0.		0.		0.		0.			
11	0.		0.		0.		0.		0.			
12	0.		0.		0.		0.		0.			
13	0.		0.		0.		0.		0.			
14	0.		0.		0.		0.		0.			
15	0.		0.		0.		0.		0.			

SOURCE NUMBER 1 REGION NUMBER 08 POLITICAL JURISDICTION 4 COUNTY NAME DAKOTA COORDINATES X 0.0 Y 0.0 AREA 0.0

	PARTICULATES		SULFUR OXIDES		CARBON MONOXIDE		HYDROCARBONS		NITROGEN OXIDES		FUEL TOTAL	
	ACTUAL	EXPECTED	ACTUAL	EXPECTED	ACTUAL	EXPECTED	ACTUAL	EXPECTED	ACTUAL	EXPECTED	ACTUAL	EXPECTED
DOMESTIC												
COAL	0.		0.		0.		0.		0.		0.	
OIL	4.		32.		2.		1.		5.		899.	
NATL.GAS	4.		0.		4.		2.		15.		390.	
COMM&IND												
COAL	0.		0.		0.		0.		0.		0.	
RES.OIL	1.		7.		0.		0.		1.		45.	
DIST.OIL	0.		2.		0.		0.		1.		44.	
NATL.GAS	11.		0.		11.		4.		42.		1138.	
NON-PT												
COAL	4.		4.		0.		0.		1.		73.	
RES.OIL	0.		2.		0.		0.		0.		12.	
DIST.OIL	0.		1.		0.		0.		1.		19.	
NAT'L.GAS	1.		0.		0.		2.		8.		88.	
WOOD	0.		0.		0.		0.		0.		3.	
OPEN BRN	3.		0.		14.		5.		1.		328.	
INCINER	0.		0.		0.		0.		0.		0.	
SOLVENT	0.		0.		0.		18.		0.		18.	
VESSELS	1.		2.		2.		1.		2.		52.	
RAILRD	5.		14.		15.		11.		16.		437.	
DIESEL	9.		16.		115.		23.		120.		706.	
OTHER	0.		0.		0.		80.		0.		7606.	
AS 25MPH	20.		12.		7864.		1048.		557.		59573.	
AS 45MPH	13.		8.		3021.		453.		432.		39238.	
OTHER	1.		0.		3.		1.		0.		62.	
ADDPCL												
1	0.		0.		0.		0.		0.			
2	0.		0.		0.		0.		0.			
3	0.		0.		0.		0.		0.			
4	0.		0.		0.		0.		0.			
5	0.		0.		0.		0.		0.			
6	0.		0.		0.		0.		0.			
7	0.		0.		0.		0.		0.			
8	0.		0.		0.		0.		0.			
9	0.		0.		0.		0.		0.			
10	0.		0.		0.		0.		0.			
11	0.		0.		0.		0.		0.			
12	0.		0.		0.		0.		0.			
13	0.		0.		0.		0.		0.			
14	0.		0.		0.		0.		0.			
15	0.		0.		0.		0.		0.			

SOURCE NUMBER 1 REGION NUMBER 145POLITICAL JURISDICTION 0 COUNTY NAME TOTAL COORDINATES X 0.0 Y 0.0 AREA 0.0

	PARTICULATES		SULFUR OXIDES		CARBON MONOXIDE		HYDROCARBONS		NITROUS OXIDES		FUEL TOTAL	
	ACTUAL	EXPECTED	ACTUAL	EXPECTED	ACTUAL	EXPECTED	ACTUAL	EXPECTED	ACTUAL	EXPECTED	ACTUAL	EXPECTED
DOMESTIC												
COAL	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	
OIL	38.	271.	19.	11.	45.	7525.						
NATL.GAS	93.	3.	97.	39.	365.	9740.						
COMMEIND												
COAL	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	
RES.OIL	6.	84.	0.	1.	16.	527.						
DIST.OIL	4.	19.	0.	1.	15.	515.						
NATL.GAS	123.	4.	129.	52.	485.	12941.						
NON-PT												
COAL	379.	369.	6.	3.	49.	6476.						
RES.OIL	12.	163.	0.	2.	31.	1027.						
DIST.OIL	12.	59.	0.	2.	50.	1651.						
NATL.GAS	73.	2.	2.	161.	706.	8065.						
WOOD	0.	0.	0.	0.	0.	0.						
OPEN BRN	42.	3.	225.	79.	16.	5298.						
INCINER	0.	0.	0.	0.	0.	0.						
SOLVENT	0.	0.	0.	286.	0.	286.						
VESSELS	0.	0.	0.	0.	0.	0.						
RAILRD	92.	240.	259.	185.	277.	7388.						
DIESEL	126.	226.	1634.	327.	1710.	10056.						
OTHER	0.	0.	0.	1134.	0.	108020.						
AS 25MPH	374.	227.	149564.	19942.	10594.	1133057.						
AS 45MPH	90.	54.	20812.	3122.	2973.	270283.						
OTHER	6.	0.	34.	7.	1.	689.						
ADDPOL												
1	0.	0.	0.	0.	0.							
2	0.	0.	0.	0.	0.							
3	0.	0.	0.	0.	0.							
4	0.	0.	0.	0.	0.							
5	0.	0.	0.	0.	0.							
6	0.	0.	0.	0.	0.							
7	0.	0.	0.	0.	0.							
8	0.	0.	0.	0.	0.							
9	0.	0.	0.	0.	0.							
10	0.	0.	0.	0.	0.							
11	0.	0.	0.	0.	0.							
12	0.	0.	0.	0.	0.							
13	0.	0.	0.	0.	0.							
14	0.	0.	0.	0.	0.							
15	0.	0.	0.	0.	0.							

SOURCE NUMBER 1 REGION NUMBER 146POLITICAL JURISDICTION 0 COUNTY NAME TOTAL COORDINATES X 0.0 Y 0.0 AREA 0.0

	PARTICULATES		SULFUR OXIDES		CARBON MONOXIDE		HYDROCARBONS		NITROUS OXIDES		FUEL TOTAL	
	ACTUAL	EXPECTED	ACTUAL	EXPECTED	ACTUAL	EXPECTED	ACTUAL	EXPECTED	ACTUAL	EXPECTED	ACTUAL	EXPECTED
DOMESTIC												
COAL	0.	0.	0.		0.		0.		0.		0.	
OIL	391.	2814.	195.		117.		469.		7816?.			
NATL.GAS	282.	9.	297.		119.		1115.		29730.			
COMMERCIND												
COAL	0.	0.	0.		0.		0.		0.			
RES.OIL	35.	478.	0.		5.		90.		3006.			
DIST.OIL	22.	106.	0.		4.		89.		2938.			
NATL.GAS	702.	22.	739.		296.		2772.		73913.			
NON-PT												
COAL	1279.	1246.	22.		11.		164.		21857.			
RES.OIL	40.	551.	0.		5.		104.		3467.			
DIST.OIL	42.	201.	1.		8.		147.		5571.			
NATL.GAS	245.	8.	5.		545.		2393.		27234.			
WOOD	0.	0.	0.		0.		0.		0.			
OPEN BRN	161.	10.	856.		302.		60.		20132.			
INCINER	0.	0.	0.		0.		0.		0.			
SOLVENT	0.	0.	0.		1087.		0.		1087.			
VESSELS	7.	20.	18.		14.		21.		562.			
RAILRD	819.	2129.	2293.		1638.		2457.		65521.			
DIESEL	629.	1131.	8167.		1633.		8544.		50257.			
OTHER	0.	0.	0.		5668.		0.		539845.			
AS 25MPH	881.	534.	352531.		47004.		24971.		2670691.			
AS 45MPH	1444.	869.	334386.		50158.		47769.		4342679.			
OTHER	149.	0.	879.		176.		18.		17581.			
ADDPOL												
1	0.		0.		0.		0.		0.			
2	0.		0.		0.		0.		0.			
3	0.		0.		0.		0.		0.			
4	0.		0.		0.		0.		0.			
5	0.		0.		0.		0.		0.			
6	0.		0.		0.		0.		0.			
7	0.		0.		0.		0.		0.			
8	0.		0.		0.		0.		0.			
9	0.		0.		0.		0.		0.			
10	0.		0.		0.		0.		0.			
11	0.		0.		0.		0.		0.			
12	0.		0.		0.		0.		0.			
13	0.		0.		0.		0.		0.			
14	0.		0.		0.		0.		0.			
15	0.		0.		0.		0.		0.			

APPENDIX A AND B

POINT SOURCE DATA FORM

AREA SOURCE DATA FORM

APPENDIX A

POINT SOURCE DATA FORM

APCO (DUR) 193
3/71
REV 3

SOURCE NUMBER	REGION	SIC	SITE	PROCESS CODE	DESCRIPTIVE NAME (a)	COORDINATES KM X	COORDINATES KM Y	POLITICAL JURISDICTION	OWNER (b)	TYPE (c)	OPERATING (hours/year)	STACK PARAMETERS HEIGHT (ft.)	STACK PARAMETERS DIA. (ft.)	STACK PARAMETERS TEMP (°F)	STACK PARAMETERS VELOCITY (ft/sec)	MAXIMUM GAS VOLUME 10^2 (ACFM)	PLUME RISE (ft^2/sec)	
																		A

SOURCE NUMBER	MAXIMUM PROCESS WEIGHT RATE (lb/hr)	NORMAL PROCESS WEIGHT RATE (lb/hr)	COMMENTS (a)	MAXIMUM BOILER CAPACITY (10^6 BTU/hr)	(d) EF	COAL (tons/year)	(d) EF	RESIDUAL OIL (10^3 Gal/year)	(d) EF	DISTILLATE OIL (10^3 Gal/year)	(d) EF	NATURAL GAS (10^6 CF/year)	HEAT CONTENT COAL 10^6 (BTU/ton)	HEAT CONTENT RESIDUAL OIL (10^3 BTU/Gal.)	HEAT CONTENT DIST. OIL (10^3 BTU/Gal.)	HEAT CONTENT NATURAL GAS (BTU/CF)	
																	B

SOURCE NUMBER	% ASH COAL	SULFUR CONTENT COAL	SULFUR CONTENT RESID.	SULFUR CONTENT DIST.	SULFUR CONTENT NAT. GAS	CONTROL EFFICIENCY PART	CONTROL EFFICIENCY SO_2	DEVICE INDENT	COMMENTS (a)	HAND CALCULATED EMISSIONS (tons/year) PART.	SO_2	CO	HC	NO_2	ALLOWABLE EMISSIONS (tons/year) PART	ALLOWABLE EMISSIONS (tons/year) SO_2	
																	C

SOURCE NUMBER	COMMENTS (a)	
		D

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

(a) Letters and numbers may be put in these columns
(b) Owner → Private = 1; Local = 2; State = 3; Federal = 4; Utilities = 5.
(c) Type → Process = 1; Fuel Combustion = 2; Solid Waste Disposal = 3.
(d) EF → refers to emission factor set number associated with emission factors on emission factor sheet.

All decimal points are implied and are signified by a ▼ between columns.

APPENDIX B
NEBRASKA TABLE 3

AREA2 SOURCE DATA FORM

APPORTIONING FACTORS FOR COMPUTER CALCULATED EMISSIONS

Source #	REGION	POLITICAL SUBDIVISION		X COORDIN. KM.	Y COORDIN. KM	SOURCE AREA KM^2	STACK ht. (ft.)	DOMESTIC A-1 COAL	DOMESTIC A-2 OIL	DOMESTIC A-3 NATL. GAS	COMMERCIAL AND INSTITUTIONAL A-4 COAL	COMMERCIAL AND INSTITUTIONAL A-5 RES. OIL	COMMERCIAL AND INSTITUTIONAL A-6 DIST. OIL	COMMERCIAL AND INSTITUTIONAL A-7 NATL. GAS
	1,2,3,4	5,6	7-8	9-17	18-21	22-25	26-32	33-34	35-36	37-38	39-40	41-42	43-44	45-46

Source #	NON-POINT SOURCE INDUSTRIAL A-8 COAL	A-9 RES. OIL	A-10 DIST. OIL	A-11 NATL. GAS	A-12 WOOD	OPEN A-13 BURNING	A-14 INCINER.	SOLVENT A-15 EVAPOR	VESSELS A-16 DIESEL	A-17 RAILROAD	DIESEL A-18 MOTOR VE	A-19 OTHER	GASOLINE MOTOR VEHICLES A-20 25 M.P.H	GASOLINE MOTOR VEHICLES A-21 45	A-22 OTHER
	47-48	49-50	51-52	53-54	55-56	57-58	59-60	61-62	63-64	65-66	67-68	69-70	71-72	73-74	75-76

HAND CALCULATED EMISSIONS

Source #	PARTICULATE EMISSIONS (tons/yr) P-1	P-2	P-3	P-4	P-5	P-6	P-7	P-8	P-9	P-10	P-11	P-12	P-13	P-14	P-15
	1-2	3-4	5-6	7-8	9-10	11-12	13-14	15-16	17-18	19-20	21-22	23-24	25-26	27-28	29-30

Source #	SO_x EMISSIONS (tons/yr) S-1	S-2	S-3	S-4	S-5	S-6	S-7	S-8	S-9	S-10	S-11	S-12	S-13	S-14	S-15
	31-32	33-34	35-36	37-38	39-40	41-42	43-44	45-46	47-48	49-50	51-52	53-54	55-56	57-58	59-60

Source #	CO EMISSIONS (tons/yr) C-1	C-2	C-3	C-4	C-5	C-6	C-7	C-8	C-9	C-10	C-11	C-12	C-13	C-14	C-15
	61-62	63-64	65-66	67-68	69-70	71-72	73-74	75-76	77-78	79-80					

Source #	HYDROCARBON EMISSIONS (tons/yr) H-1	H-2	H-3	H-4	H-5	H-6	H-7	H-8	H-9	H-10	H-11	H-12	H-13	H-14	H-15
	1-2	3-4	5-6	7-8	9-10	11-12	13-14	15-16	17-18	19-20	21-22	23-24	25-26	27-28	29-30

Source #	NO_x EMISSIONS (tons/yr) N-1	N-2	N-3	N-4	N-5	N-6	N-7	N-8	N-9	N-10	N-11	N-12	N-13	N-14	N-15
	31-32	33-34	35-36	37-38	39-40	41-42	43-44	45-46	47-48	49-50	51-52	53-54	55-56	57-58	59-60

1,2,3,4	5,6	7-8	9-10	11-12	13,14	15-16	17-18	19-20	21-22	23-24	25-26	27-28	29-30	31-32	33-34	35-36	37-38	39-40	41-42	43-44	45-46	47-48	49-50	51-52	53-54	55-56	57-58	59-60	61-62	63-64	65-66	67-68	69-70	71-72	73-74	75-76	77-78	79-80

APPENDIX C

POINT SOURCE QUESTIONNAIRE

COVER LETTER AND PRIMARY QUESTIONNAIRE FORM

STATE *of* NEBRASKA
DEPARTMENT OF HEALTH
DIVISION OF AIR POLLUTION CONTROL
STATE HOUSE STATION, BOX 94757
LINCOLN, NEBRASKA 68509

May 7, 1971

Gentlemen:

The Division of Air Pollution Control, with the authorization of the State Air Pollution Control Council, is engaged in a study to determine the nature and extent of air pollution throughout the State of Nebraska.

As an essential part of the study, we are contacting industrial establishments to determine the extent of emissions from industrial processes, waste disposal methods and fuel combustion. Time limitations make it madatory that these contacts be made by mail survey. Accordingly, we urgently request your cooperation in completing the enclosed questionnaire and returning it within 21 days. The duplicate form is to be retained for your files. The completed form should be sent to:

The Division of Air Pollution Control
P. O. Box 94757
Lincoln, Nebraska 68509

We wish to emphasize that accurate information is needed so that each source may be placed in its proper perspective in relation to other sources in the state. It is requested that data be submitted for the year 1970. A separate form is to be used for each site located within the state. It is intended that the data obtained is for the internal use of this agency.

If complete data are not received within 21 days, it will be necessary to estimate the data from your plant on the basis of the best available information. Your cooperation is essential and will be appreciated.

If questions arise concerning the questionnaire, or if additional copies are needed, please phone Mr. Gene Robinson at (402) 471-2141.

Yours truly,

Walter H. Franke, Director
Air Pollution Control

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Enclosures

Form I

Return To:

Gene Robinson
Division of Air Pollution Control
State House Station Box 94757
Lincoln, Nebraska 68509

AIR CONTAMINANT EMISSIONS SURVEY

Information is to be representative of Calendar Year

FOR OFFICE USE ONLY
Received By:
Reviewed By:
County:
SIC Number:
Coordinates:

Firm name: _____

Person to contact regarding this report: _____ Title: _____ Phone: _____

Mailing address: _____

Plant address: _____ County _____

Nature of business: (Products) _____

Employees at plant location: _____ ; If seasonal, give range _____. Approximate land area at plant location: _____

SECTION 1 – FUEL USE FOR GENERATION OF HEAT, STEAM, AND POWER

Normal operating schedule: _____ Hours per day _____ Days per week _____ Weeks per year _____

Seasonal and/or peak operation period: (Specify) _____

Estimate of percent of total fuel consumed to provide space heat _____

	A	B	C	D	E	F	G	H	I	J	K	L
				Fuel data (D)					Air cleaning equipment		Estimate of contaminants (M)	
Source No. (A)	Size of unit (input) (B) 10^6 Btu hr	Type unit (C)	Installation Date	Type fuel (E)	Amount per year (F)	Heat content (G) Btu	Percent sulfur (G-H)	Percent ash (coal only) (G-H)	Type (I)	Efficiency (J) %	Type (K)	Quantity (L)

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SECTION II – REFUSE DISPOSAL

Refuse disposed of _____ On site _____ Off site – Location of disposal site and/or name of hauler: _____

Normal on-site combustion operating schedule: _____ Hours per day _____ Days per week _____ Weeks per year _____

Seasonal and/or peak operation period: (Specify) _____

	A	B	C	D	E	F	G	H
	Waste material						Estimate of contaminants (M)	
Source No. (A)	Type (N)	Amount per year (F)	Method of disposal (See Code Page 2)	Incinerator capacity, lb/hr	Auxiliary fuel used (O)	Type and efficiency, air cleaning equipment (I-J)	Type (K)	Quantity per year (L)

AIR CONTAMINANT EMISSIONS SURVEY

SECTION III – PROCESS EMISSIONS

Normal operating schedule: _____ Hours per day _____ Days per week _____ Weeks per year _____

Seasonal and/or peak operation period: _____

NOTE: For intermittent operations, indicate approximate frequency and duration so that estimates of yearly emissions may be obtained.

	A	B	C	D	E	F	G	H	I
Source No.[A]	Processes or operations releasing contaminants to atmosphere (A - P)	Installation Date	Materials processed and/or used at operations		Quantity of gas discharged from process or operation	Type and efficiency air cleaning equipment (I-J)	Estimate of contaminants[M]		Basis of estimate[R] (Please specify basis)
			Type[Q]	Quantity per year[F]			Type[K]	Quantity per year[L]	

[a] Give a different no. to represent each source and then give stack data opposite the same number on Section IV.
[b] Nameplate data are sufficient.
[c] Hand-fired; underfeed, traveling-grate or spreader stoker; cyclone furnace; pulverized, wet or dry bottom with or without fly ash reinjection; rotary or gun-type oil burner; etc.
[d] Fuel data are to be reported on "as burned basis"
[e] Coke, bituminous coal, anthracite coal, No. 1, 2, 4, 5 or 6 fuel oil; natural gas; LPG; refinery or coke oven gas; wood, etc.
[f] Pounds, tons, or gallons per year.
[g] If unknown, please give name and address of fuel supplier.
[h] Sulfur and ash content for each fuel should be a weighted average.
[i] Cyclone, scrubber, electrostatic precipitator, baghouse, settling chamber, etc.
[j] Please state if efficiency is a rated or operating efficiency.
[k] Fly ash, sulfur oxides, etc. (include chemical description).
[l] Pounds or tons per year.
[m] Give stack test data if available, or otherwise specify basis used.
[n] Rubbish, garbage, mixed garbage and rubbish, waste paper, wood chips or sawdust, etc.
[o] Indicate whether auxiliary fuel is used in incinerators and pit burning, and the amount.
[p] Sulfuric acid-chamber, aluminum smelting-crucible furnace, iron melting-cupola, cement manufacture-dry process, solvent cleaning, or other (please specify).
[q] Acid produced, tons; metal charged or processed, tons; cement produced, bbl.; solvent consumed, gallons; etc. per year.
[r] Process material balance studies, field tests by plant or by equipment manufacturers, or other basis.
[s] List sources Sections I, II, III which utilize each stack.

METHOD OF DISPOSAL CODE:
1. Open-burning dump.
2. Sanitary landfill. (no burning)
3. Burned in boiler or furnace.
4. Incinerator, single chamber.
5. Incinerator, multiple chamber
6. Incinerator, rotary.
7. Conical metal burner.
8. Other (Specify)

SECTION IV – STACK DATA

SOURCES VENTED[S]	HEIGHT (Feet)	INSIDE DIAMETER (top) (feet)	EXIT GAS		
			Temperature of	Velocity (FPS)	Moisture (%)

Any supplemental material or data considered pertinent (flow diagrams, reports, summaries, test results, maps) should be submitted with this form.

Date | Name and title of official submitting reports

USE ADDITIONAL SHEETS IF NECESSARY